THE

JOURNAL OF GAS LIGHTING.

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. XIV. No. 341—17th YEAR.] LONDON, NOVEMBER 14, 1865. [Subscription per Ann. { 15s. in Advance / 18s. Credit.] DOUBLE No. Price 1s.

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See Advertisement, page 830.

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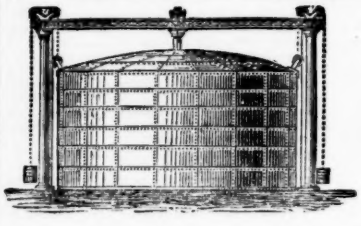

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These Meters are protected by registration under the "Copyright of Designs Act." They are much more durable, and at the same time more easily repaired than those in Tin Cases.

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CONSUMERS GAS-METERS IN CAST-IRON & TINNED SHEET-IRON CASES.

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Who with several Gas Companies successfully opposed the prolongation of Mr. F. C. Hills's Patent for the Purification of Gas by Artificial Oxide of Iron, respectfully inform Directors of Gas Companies, Gas Engineers, and all interested in using the cheapest and most effectual material for the Purification of Gas, that they are now prepared to supply the NATURAL OXIDE OF IRON at a price per ton delivered, or to take Contracts by the ton of coal carbonized, receiving back the spent material.

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Queen's Dock, Hull, March 28, 1864.

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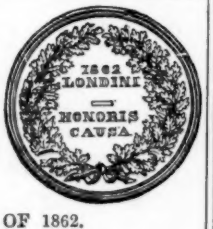
IRON-WORKS, FROME SELWOOD,

PATENT GAS-VALVES.



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WAS AWARDED TO THE PATENTEES AT THE INTERNATIONAL EXHIBITION OF 1862.

These Valves are formed of two cylinders, working one on the other horizontally, having their faces ground perfectly gas-tight.

They are adapted either as central valves, for two, three, or four purifiers—as bye-passes—or as inlet and outlet-valves for gasholders.

They have been tested for five years, and are in use in many important Gas-Works in various parts of the Kingdom. About ninety of them have been fixed, and the most satisfactory reports of their advantages continue to be received.

The simplicity of their construction and the ease with which they are managed are strong recommendations in Gas-Works. The index enables the manager of the works to see at a glance the direction in which the gas is passing.

The time which they have been in use proves their durability; and if, in course of many years, the faces should leak, they can be easily reground without removal from their places, and made as tight as when new.

The following Testimonial has been received from R. P. Spice, Esq. :—

"*County Chambers, Cornhill, London, E.C., Jan.* 22, 1864.

"DEAR SIRS,

"It is with pleasure that I comply with your request for a few words respecting your centre valves.

"I have them in use on works which I hold on lease, I have adopted and fixed them on several works which I have remodelled, and I now use no others; indeed, the satisfaction they give me after several years experience of their working is unqualified and complete.—I am, dear sirs, yours very truly,

"*Messrs. Cockey and Sons, Frome.*" "R. P. SPICE."

ANOTHER

MEDAL AWARDED BY THE JURY, INTERNATIONAL EXHIBITION,

1862,

To THOMAS GLOVER,

SUFFOLK STREET, CLERKENWELL GREEN, LONDON.

Thomas Glover has great pleasure in informing Gas Companies and his other Patrons, that the *Jury of Class XXXI. of the International Exhibition of* 1862 have awarded, for his Patent Dry Gas-Meter, *a Prize Medal.* The reason given for this Award, in the Juries Official Report, is, "*For excellence of manufacture, as regards Dry Meters.*" See Official Report, p. 346.

It is worthy of remark, that the only two other Firms who receive Awards *both manufacture imitations of Thomas Glover's* Patent Dry Gas-Meter, and the reason given for these Awards is "*construction* and sound workmanship." Thomas Glover, therefore, claims that the *construction* of his Meter has obtained *three Awards from the Jury of the International Exhibition of* 1862; at the same time, *contrasting* the Award granted for his Meter by the words, "*For excellence of manufacture, as regards Dry-Meters.*"

The Prize Meter was exhibited in Class XXXI., No. 6301, connected with a 1-foot holder, to demonstrate that a 50-light Meter *measures and indicates accurately the small quantity of One Foot.*

WILLIAM PARKINSON AND CO.

(SUCCESSORS TO SAMUEL CROSLEY),

PATENT WET AND DRY GAS-METER MANUFACTURERS, &c.

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Established 1816.

PATENT IMPROVED WET METER.

W. P. and Co. invite especial attention to this Meter, which entirely overcomes the difficulty to which ordinary Wet Meters are subjected, owing to the short range of the Float, which is necessary, in order to meet the requirements of the Sale of Gas Act.

"It is well known that n Meters constructed so that the valve will close when the water is drawn off to such a point as to render them 3 per cent. slow the lights are liable to be extinguished by the closing of the valve by a sudden increase of pressure. To meet this difficulty, Mr. Pinchbeck has invented an ingenious and simple arrangement by which the action is reversed, and any such increase of pressure, in his Meter, raises the value instead of depressing it. The fact of the improvement having been adopted by Messrs. W. Parkinson and Co. is a sufficient guarantee that it practically and effectually remedies the inconvenience it is designed to meet."—Journal of Gas Lighting.

PATENT IMPROVED DRY METER,

Which W. P. and Co. pledge themselves to manufacture with the same quality of materials and workmanship as in their Wet Meter, thereby giving Gas Companies and others the advantage of procuring a first-rate Dry as well as a Wet Meter, which, hitherto, they have been unable to do.

STATION-METERS AND GOVERNORS.

Which can be seen at all the London Gas-Works. Also Liverpool, Manchester, Sheffield, Nottingham, Belfast, Glasgow, Birmingham, Dublin, Bristol, Leeds, Leicester, Brighton, Southampton, Sunderland, Wolverhampton, Bradford, Norwich, &c., &c.

TEST GASHOLDERS, EXPERIMENTAL METERS, EXHAUSTER REGULATORS,

MINUTE CLOCKS, PRESSURE GAUGES, PHOTOMETERS, PRESSURE REGISTERS, &c.

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TO CORRESPONDENTS.

No notice can be taken of anonymous communications. Whatever is intended for insertion, must be authenticated by the name and address of the writer; not necessarily for publication, but as a guarantee of good faith.

NOTICES.

The subscription is 15s. per annum, if paid in advance during the month of January, or 18s. credit, in two sums of 9s. each, in July and January of each year. Post-Office orders must be made payable at the Charing-Cross Money-Order Office, to William H. Bennett, No. 42, Parliament Street, Westminster.

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Stamped copies, when forwarded by post, must be folded so as to expose the stamp; they are otherwise liable to the full postage charge for letters.

All Communications to be addressed to the Editor, No. 42, Parliament Street, Westminster; and orders for Advertisements to the Publisher, Mr. W. B. King, No. 11, Bolt Court, Fleet Street.

THE JOURNAL OF GAS LIGHTING,
WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, NOVEMBER 14, 1865.

Notes upon Passing Events.

THE pretty little city of Brussels has been inoculated with ambition for improvements on the Parisian and London model combined. A Belgian newspaper contains the curious intelligence, that a popular member of Parliament, a member of the Metropolitan Board of Works, and pot pipe manufacturer of Lambeth, is the principal godfather of the scheme for Imperializing Brussels. We may really parody Shakespeare and cry—To what strange uses may we come, Horatio! The Brussels scheme includes a plan of intercepting drains laid along the river Senne, over which a magnificent boulevard is to be constructed, with two great "Places," or squares; a "monumental" fountain—we have no English word to express a fountain which is to be the exact reverse of Sir James Duke's tombstone tablet in Fleet Street—a central market of vast dimensions; and an exchange, or bourse, capable of accommodating 1500 persons. The total cost is estimated at £800,000 sterling, for which the municipality of Brussels is asked to pay the financial association represented by Mr. Francis Doulton, £320,000 in the course of three years, and an annuity of £24,000 for 66 years. The Burgomaster, or Lord Mayor, is quite willing, and proposes to increase the taxation of Brussels with a facility which must excite the astonishment and envy of the Metropolitan Board of Works. He proposes an increase to the amount of over £33,000 sterling a year by additions to the land-tax, the personal tax, a doubling of the tax on hired carriages, a tax on dogs, a tax on inheritance in Brussels, and a tax on the property of corporate bodies. It appears that our radical M.P. and his financial partners make their proposal in truly Cæsarian form. It is to be accepted as a whole or declined, no modification in an economical sense can be entertained. Such a message from Lambeth is enough to make Viscount Williams turn in his grave. The editor of the *Moniteur de l'Industrie Belge* objects that the citizens can do without the fountain for the present—do not require markets of such vast dimensions, one-eighth the capacity of those of Paris—and require not a palace for a bourse, but a moderate building, where shops and cellars will be part of the plan and pay part of the rent. We shall watch with interest the close of this negotiation, in which the ideas seem better fitted for execution in wealthy London than little Brussels.

The result of the facilities for forming joint-stock companies which have been created during the last twenty years, ending with the Limited Liability Acts, has not been exactly what was expected. The present generation of professional speculators have worked so hard, so rapidly, and so successfully, that they have almost melted the confidence of the outside speculating or investing public, and are reduced to prey upon each other. It is related of the notorious Crockford that when, towards the close of his life, he became an owner of racehorses, and was risking a fortune on the possibility of one horse winning the St. Leger, some old companion asked him how he, who was up to all the dangerous swindles to which a racehorse was subject, could be mad enough to take up the dangerous trade. His answer was that, having at his St. James's Street Hell helled off all the fortunes of the day, he was compelled to take up some speculating game to keep his arid, shaking hands employed. Had Crocky lived to this day, he would have found a more exciting game as an agent or midwife of new companies. A quarter of a century back, the stagging system was in full vigour, and, at the expense of pen, ink, paper, and postage, men with a good address at the top of their letters, and a good reference, realized fortunes by the premiums on allotments more or less temporary. The mania expired, leaving tons of waste paper that had not risen to a premium. We remember seeing the summer-house of one of the few wise-in-time railway stags papered with letters of allotment, sent to him while a happy accident had led him to dissipate the time in a yacht through the Mediterranean. There were answers to letters despatched by a confidential friend, who had instructions to write for everything! The summer-house stood on a small freehold, purchased with premiums gained by early applications for shares, dated from an earl's house, where the stag—a briefless and accomplished barrister—had been invited, for his whist-playing and general-utility talents. The deposit system was invented to kill stags, and had the effect of shifting the game into more moneyed quarters; and now, when public confidence has been so shaken that the soundest schemes fall stillborn, a financial pause will take place, until a new crop of confiding investors and speculators has arisen to replace the game swept away by the remorseless Indians of the Stock Exchange.

The ingenuity with which the public has been victimized within the last three years is really extraordinary. First there was the bank manufacturing system, by which, amongst others, two persons, absolutely without standing of any kind in the City, managed in about twelve months to divide something like a hundred thousand pounds for promoting banks, which have all come out at a premium—some at enormous premiums—and which are now nearly all at a discount. Next came, under the Limited Liability Act, the plan of buying an established business, more or less profitable, and turning it into a joint-stock company. In many instances, by ingenious mani-

pulation, the real purchaser, standing behind the shadow of a company, fixed the price of the goodwill, &c., which he was to share with the vendor. The next was to work the shares to an attractive premium, and then to gradually slide the responsibility from the shoulders of the dummies and duffers who had acted the part of capitalists on to the confiding public. Under such circumstances, it is not surprising to find a business in which no assets were included purchased without an inspection of books or a single voucher for its profitableness. Why should purchasers who were to share the purchase-money be particular whether they bought at a profit or a loss? Such companies are formed, not to succeed and pay a dividend, but to make an article for the Stock Exchange and a bonus for the manufacturers. The word "promoter" is at much exploded as that of "stag." The latest dodge is to bring out a company without any real allotments at all, and trust to catching some moneyed speculator on the Stock Exchange operating for a discount, and obliged to pay a premium, because the manufacturers of the company themselves control all the shares. The supposed inventor and great master of this ingenious scheme of realizing premiums on unsubstantial companies is said to have in his pay a number of poor gentlemen, parsons, doctors, &c., with respectable addresses, who apply for shares, say, in the Balloon Company. To none but safe men are the shares allotted, and safely handed back to the original manufacturers as soon as allotted. On the bankers books all looks straight. The deposit and subsequent payments on allotment seem duly made. The knowing ones who do not believe in balloon transit sell freely at par; but as the day of settlement approaches, the shares steadily rise to a premium—in fact, there are none to be had. The most experienced practitioners have been caught in this net. In the end they must pay, or be defaulters. One eminently successful financier has thus lately been entrapped by another, and mulcted to the tune of several thousands, to the intense amusement of unscathed bystanders beholding dog eating dog. In a word, the public has so entirely lost confidence in public companies that the only chance of placing shares lies in the personal influence of the directors and their friends. Time only can restore confidence under the influence of surplus accumulations.

A meat famine is at our doors: it is no longer possible to conceal from ourselves that a plague is raging which is hurrying into the meat market an excessive number of animals, and effectually preventing the manufacture of the meat supplies required for next year. Like the cotton famine, it will take time before the public can fully understand the reality and the gravity of the calamity which has fallen upon them. It was long before an American civil war was believed possible, and when the possibility was realized, then the hopeful calculated that either it would be over in six months, or that from some unknown source or other the void of raw material would be supplied. We know how these rose-coloured expectations ended. The war did commence, and go on for three weary years. The nation was rich enough and stout enough to bear the crisis without national distress, but an enormous capital was lost for ever, and some million souls were reduced from comfort to destitution, driven into exile, or lowered to uncongenial and ill-paid toil. But there is this difference between the famine of meat and the famine of cotton: we started with an over-abundant stock of manufactured goods; we gathered raw material, inferior in quality, but in great although decreased quantities, from every tropical and many sub-tropical climates; we fell back upon other textiles, and although we paid high we were never without the materials needful for garments of decency, and even of luxury. The poorer classes had a resource in shirts and sheets they would in cheaper years have consigned to the rag-bag. We have doubted, as long as it was possible to doubt, and are now convinced against our will, that a new, fatal, practically incurable disease, of the most contagious nature, has been introduced into this country, and is spreading over all our breeding and feeding districts. At this moment the Russian cattle plague is in every county of England but four. In one day of last week two hundred and fifty new cases were reported to the Privy Council. The first idea, that this malady had been bred in pestilent London cow-houses, is now exploded. The comparison of notes with the German veterinary surgeons, who are well acquainted, by fatal experience, with the steppe murrain, has left no doubt in the minds of competent authorities of the identity of the new disease that is now ravaging our cow-sheds and cattle-yards, with the plague which has so long been known in Hungary, Galicia, Poland, and the German states on the borders of these countries. Many of the London cow-houses have been dens of filth for more than a century. The provisions of the Health Acts, the inspectors of nuisances, the officers of health in every parish, have within the last few years very much improved their condition. In their worst days London calves were sent into Essex to be fattened into veal without communicating any disorders to the cattle with which they were brought in contact. Since the importation of Russian beasts, calves from London dairies have carried the plague in all directions. Nine days after the landing of a Russian cargo, wherever any of the foreign animals were brought in contact with living cattle the disease broke out—in London, in Norwich, in Manchester, and elsewhere. It is needless to dwell further on this part of the case, which will be found set out in the most conclusive details in the forthcoming report of the Cattle Plague Commission. The rapid manner in which this new murrain has spread, is due to the share railroads have in the cattle trade. London has, from its convenience of ingress and egress, become the central mart of the cattle trade for every meat-consuming district. Every week during the importing season, something like 5000 sea-borne foreign cattle came into the Metropolitan Market, and, besides these, supplies from every feeding district of England and Scotland. Formerly, the distance in road miles regulated the supply of a district. Liverpool, Manchester, Birmingham, Portsmouth, each drew its meat from a certain circle of graziers round it. Now, such are the facilities of railway transit, that all great towns, if the price suits, draw part of their supplies from the metropolis, and a jobber will convey the balance of a herd from London to Birmingham, from Birmingham to Manchester, and so on, until entirely dispersed. It is not an unusual occurrence for a beast to have been offered for sale in three or four markets before reaching the slaughter-house. It is this activity of cattle movement, with all the consequent means of contamination in contact with other cattle, in cattle-trucks, and even in the clothes of drovers, that has caused the extraordinarily rapid spread of a disease which here, as on the Continent, is so fatal, that not more than 2 per cent. of those attacked recover.

The final result is formidable indeed to contemplate, Meat cannot be manufactured, like cotton, from machinery. At this time of the year there ought to be tens of thousands of cattle—purchased in a store state—in markets, to which they have been brought from breeding counties, fattening in the winter yards and boxes of feeding counties on roots, corn, cake, and straw. But who dare buy stock in an open market now? What is the farmer of a corn and root county to do who has three hundred acres of turnips and all the straw of his corn-ricks to consume and turn into muck? His is not a breeding farm; he cannot sell his turnips or his straw; there are no customers for roots; it is not lawful to sell straw, and if it were, what could he do for manure next year? This is not an imaginary case. The sale of store cattle is at a standstill—there are no buyers; no man of means will invest his money in such a perishable article as cattle, with the steppe murrain raging in almost every county. Up to the present time the only remedy—the remedy adopted in the countries adjoining Russia—is to isolate the disease, by stopping all the live cattle trade, stopping all fairs and markets, and permitting no animals for a certain period (thirty or sixty days) to leave a farm alive. By such means contagion would be confined within the limits of single farms; great towns would be supplied with dead meat only for that time; the expense would be great, the cost of meat would be enormously heightened, but the disease might be effectually stamped out. But nothing less than Parliament could dare to dam up so completely the ordinary course of the meat trade; even Pitt himself would not have ventured to stop all travelling and all importation by an Order in Council. Yet, as long as live cattle are permitted to travel by road and railroad, the steppe murrain will spread, and we shall daily be brought nearer a meat famine—beef at 5s. per pound and mutton at 4s. This is no joke or guess, but a sad reality.

Since penning the preceding "Notes," the reports of the Cattle Plague Commission have been published. It will be seen from the following extracts that the Right Hon. Robert Lowe, M.P.; Dr. Lyon Playfair; Professor Spooner, of the Royal Veterinary College; Dr. Quain, and three other gentlemen not so well known, recommend the total stoppage of the trade in live stock, either fat or lean. They say—

Against a disease which is highly contagious, undiscoverable at a certain stage, and too widely diffused for an army of inspectors to cope with it, there is clearly but one remedy which would be certainly and absolutely effectual. That remedy is to prohibit everywhere, for a limited time, any movement of cattle from one place to another. Enforce this, and, within a time which cannot last very long, the disease is at an end. It must stand still, and it must starve for want of nutriment. This great sacrifice would certainly eradicate the evil; we cannot say so of any sacrifice less than this.

They, therefore, recommend:—

1. *Suspension of Cattle Traffic in Great Britain.*

For the reasons stated above, we feel ourselves compelled to recommend to your Majesty that such measures shall be taken as may be requisite to invest, with as little delay as possible, some high officer of your Majesty's Government with the power of suspending for a limited time the movement of cattle from one place in Great Britain to another, for extending or shortening such period, and for renewing the prohibition as often as circumstances may render necessary.

1a. *Suggested Regulations as to Cattle Traffic should Recommendation* 1 *not be adopted.*

We believe that this measure offers, as we have already said, the only certain means of eradicating the disease, and we conceive that the end amply justifies us in proposing to the nation so great a present sacrifice. In submitting this, however, as our first recommendation to your Majesty, we are well aware that it is likely to excite much opposition; that the difficulties to which we have adverted may to some appear insurmountable; and that to those who do not regard the cattle plague in so serious a light as we do the remedy may seem worse than the evil. This view may possibly be shared by your Majesty's ministers; we think it right, therefore, to go further, and to indicate the measures which might, in our opinion, be advantageously adopted, should an absolute suspension of the movement of cattle in Great Britain not be enforced.

a. For a period to be fixed, and which might, if necessary, be extended, no lean or store stock should be permitted to be sold at any fair or market, and sales of such stock by auction or advertisement, or in any other manner whatever, should be prohibited.

b. Cattle might be moved for immediate slaughter to a market or to a slaughter-house licensed for use, but only under a licence for transit granted by the magistrates in petty sessions. The licence for transit should certify to the healthiness of the district from which the cattle come. With this exception, and except in the case of cattle driven from one part of the same farm to another, the transit of cattle over any public road (including railways), or in any coasting vessel, should be absolutely prohibited.

c. Precautions should be taken that every animal sold for butchers meat be slaughtered within a short and fixed period. It may be convenient for this purpose that no slaughter-house should be used without a licence from the local authorities, and no such licence given except on the butcher's undertaking to have all cattle which may be sold or consigned to him driven direct to the slaughter-house or premises attached to it, from whence they are not to be moved alive. Cattle sold at a fair or market should not be allowed to leave the precincts of the borough or other place where the fair or market is held (in the case of London, the Metropolitan Police District) alive. To ensure this object, it might be required that cattle entering a fair or market should be branded or marked on entrance, and cattle sold elsewhere to a butcher similarly marked at the time of sale, and that it should be penal for any one but a butcher to have a marked animal in his possession. If any regulation of this kind is adopted, it would be advisable that in every place where a public market is held layers should be provided in which unsold animals could remain from one market day to another.

d. It would be desirable to draw some more distinct line between infected and uninfected districts than is at present traced by the Orders in Council. For this purpose, whenever a case of infection is discovered, or is known to have existed within a certain period before the time when these measures may come into operation, the district should be 'proclaimed' as infected in the *Gazette* and the county papers. The egress of live cattle from a proclaimed district should be strictly prohibited, but cattle slaughtered within it and certified by the district inspector to be fit for food might be sent out of it, under proper safeguards for disinfection. Provision should be made for enabling districts which had been proclaimed to be publicly set free, on proof being furnished that all risk from infection was at an end.

This latter proposal would, if adopted, strengthen the inducements of the inhabitants of infected districts to rid themselves of the disorder, and those of their neighbours to watch vigilantly against its approach.

A second report, signed by Earl Spencer, Lord Cranborne, M.P., the eldest son of the Marquis of Salisbury; Mr. Clare Sewell Read, the farmer M.P., returned by the farmers of Norfolk; and Dr. Bence Jones, states that these commissioners are unable to join the other members of the commission in recommending the total stoppage of all movement of cattle in Great Britain. If such a measure were practical, they say, it would be more effectual than any other in extirpating the disease; but they do not believe it to be practicable. It would involve an interference with the course of trade at variance with our national habits, and it would demand sacrifices from large numbers of people who are removed from the presence of the disease, and who will, therefore, not see the necessity for so stringent a measure. The sudden transformation of the enormous cattle trade by which the large towns are supplied into a dead meat trade, would involve difficulties and dangers of the most formidable kind. The foreign trade, which at this moment furnishes a considerable proportion of the meat consumed in the large towns, would also be seriously interfered with. The price of meat would, in consequence, rise materially, and suddenly these difficulties would lead to the evasion of the prohibition; and if it is largely evaded, as they think possible, it will then become useless. Earl Spencer and Mr. Read are, however, of opinion that store animals may be permitted to move from the farm of the seller to that of the buyer, provided they have a certificate from a justice of the peace acting in the district where the sale takes place, showing that they are free from disease, and that they have been located for a certain time on the farm of the seller. There is also a separate report of Mr. M'Clean, who is opposed to the interference with the traffic in cattle, and who states that the evils arising from it would be greater than those arising from the disease itself. It is not probable that without the sanction of Parliament the more sweeping recommendations of the majority of the commissioners will be adopted. Indeed, under any circumstances, the early calling together of Parliament seems essential, in order to authorize novel and exceptional and vigorous legislation.

THE EXPLOSION AT THE LONDON GAS-WORKS, AT NINE ELMS.

On the occurrence of any great calamity a panic is almost invariably created, and groundless apprehensions are felt of some improbable or impossible danger; and so it has been with the sad accident caused by the ignition of an explosive mixture of gas and atmospheric air in the meter-house of the London Gas-Works, at Nine Elms, on the 31st ult. The confident statements in all the papers on the following day that a "gasometer" containing nearly a million cubic feet of gas had exploded, and the fear-exciting comments and forebodings founded on that statement, were, indeed, sufficient to create alarm in the minds of all those who relied on the correctness of the representations placed before them. The alarm thus excited it will be difficult to dispel, though it has been proved to be without any reasonable foundation, and it may for a long time leave an uneasy feeling in the minds of those whose business occupations take them in the vicinity of the huge reservoirs of gas which they have been led to believe may at any moment explode.

The leading articles of the London journals, founded on the exaggerated accounts of casual reporters, contained the most extravagantly absurd assertions and reflections, almost surpassing, in their displays of ignorance, any previous example of the utter want of scientific knowledge in the usual writers for the daily press. The *Times*, taking the lead, said the accident had roused the public from the perilous state of security in which they had hitherto been placed, and showed that St, Paul's, and Westminster Abbey, and the Houses of Parliament might any day be destroyed by similar explosions. After four days allowed for gaining further information, another leading article appeared in the same paper even more astounding than the first. We were then told that gas is constantly made in the most dangerous manner, that it is now "known for "certain" that gasholders "are practically capable of ex-"ploding with terrible force, and that those who live near "them and the buildings in their neighbourhood are exposed to "as serious consequences as if they were placed over a powder-"magazine." And again, it was asserted, that "at present it is "clear every gasometer is a powder-magazine, and to have a "gas manufactory near Westminster Abbey, St. Paul's, or one "of the bridges, is much the same as if we were to store our "gunpowder on the Thames Embankment." The difference, if any, it might be assumed, is in favour of the latter, for we are told, in conclusion, that the metropolis is exposed by the gasholders "to a danger greater than that of the explosion of "the Erith powder-magazines." The *Morning Post* was, if possible, in still greater dread of what the gasholders might do, for not only were St. Paul's and Westminster Abbey in danger, but that "congeries of gasometers in Blackfriars may "go off some day like the broadside of a man-of-war, and lay "half London in ruins." If half London would be blown to pieces by the explosion of the comparatively small quantity of gas stored at Blackfriars, it might be feared that if all the gasholders in the metropolis were to "go off," half the towns in the kingdom would suffer, and to be perfectly secure, the source of danger must be removed to the Land's End. The *Daily News* attempted to be profoundly scientific in discoursing on the subject, and spoke of explosive compounds that might possibly be generated in some unknown, mysterious manner; alluding ominously to gun-cotton, as if that might become one of the products of the distillation of coal. The *Morning Advertiser* was grandiloquently absurd in its description of the accident: "Suddenly there came an explosion, "like the roar of thunder or the salvo of a park of artillery, "followed by a dense cloud of smoke, which for several "minutes darkened the atmosphere." The panic-stricken inhabitants of the neighbourhood are represented to have seen,

"when the smoke and steam were cleared away, that one of "the two gasometers, charged with a million cubic feet of gas, "had exploded, and was lying in a heap of ruins, and that "such had been the fear of the explosion that the gigantic "iron columns which had supported it lay twisted into all "sorts of fantastic shapes and fashions." The panic which naturally seized the inhabitants must have imparted at the same time extraordinary powers of vision, to enable them to see at once through the high wall which surrounds the premises, and remains uninjured, the exploded gasholder lying in ruins, and that the ordinarily inanimate iron columns had thrown themselves down in all manner of shapes by the fear of the explosion. Before they could be seen by any other persons, they so far recovered self-possession as to assume their previous erect positions; and the windows, which were said to have been demolished within a radius of half a mile from the works, were restored before their broken condition was perceived, with the exception of those in the immediate neighbourhood. The *Daily Telegraph* topped the climax of absurdities: "A column "of lurid flame shot into the air, inclining towards the south, "and carrying with it the fragments of the iron plates of the "gasholder. In a moment the new meter-house collapsed "bodily." It was further said that of the gasholder which exploded "nothing remained but a blackened circle of iron "columns," and that "fragments of the ruptured gasholder "were scattered all over the works." After having communicated the information that "the meter-house collapsed bodily," and that the gasholder was blown into fragments, the writer of the article sagely remarks, "we have yet to learn "whether the gasholder may not have been overcharged, or "whether its 'solid sheet-iron sides' may not have stood in as "much need of renovation as a well-worn engine-boiler." It is very evident that he has yet to learn the elements of gas making, or he would not conceive, as he evidently does, that gasholders are liable to burst by internal pressure like steam-boilers. In continuation of his speculations on the explosion of the gasholder and the collapse of the meter-house, he intimated his suspicion that the foundations of "streets full of "small dwellings" within the distance of a mile may have been shaken, and that the stability of the arches of the innumerable railways that intersect the neighbourhood may have been endangered; and he wound up his sapient lucubrations with the comparison of the gasholder to a powder-magazine, the explosion of which placed not only Westminster Abbey and "the "Parliament palace," but three new bridges, in peril, though it left uninjured the wall and the offices within a few yards from the spot where it occurred!

Among all the nonsensical twaddle that was uttered by the press on this occasion, the only two voices raised to give a rational explanation of the disaster were the *Engineer* and a correspondent of the *Morning Post*. They not only pointed out that it was impossible that a sufficient quantity of air to render the gas explosive could have entered the gasholder, but that the gasholder itself, resting still in its tank, was amply sufficient refutation of the assertion that the gas within it had exploded. A moment's reflection would, indeed, have convinced any one who has the slightest knowledge of the subject that an explosion in the interior of the gasholder is impossible in the ordinary course of manufacturing gas, for unless coal gas be mixed with at least five times its bulk of atmospheric air no explosion can take place. The gas mixed with a smaller proportion of air will *burn*, but will not *explode*. It is essential to a combustible explosive compound, whether gaseous or solid, that it should contain within itself all the elements of combustion, for if the agency of the oxygen of atmospheric air be required to produce that effect, the action is retarded, and inflammation, not explosion, is the result. The writer of a letter in the *Times* of Nov. 3 suggested that the gas might have been purposely diluted with air to increase the quantity; but 1 per cent. of air lowers the illuminating power 6 per cent., and 40 per cent. entirely destroys its luminiferous properties, while 500 per cent. of air is required to form even a feebly explosive mixture. The malicious calumny has not, therefore, the shadow of a pretence of truth to rest upon. As the gasholder at the time of the explosion contained rather more than 600,000 cubic feet, its contents could not have been explosive unless 500,000 feet at least had been atmospheric air mixed with 100,000 cubic feet of gas. Even in those proportions the explosive power would have been very feeble; and to have produced the maximum explosive force the quantity of air must have been increased to 540,000 cubic feet, and the gas diminished to 60,000. Beyond that proportion the explosive force of the mixture of gas and air would diminish, until, by the addition of greater quantities of air, the mixture would be no longer explosive, and would fail to burn. As Dr. Letheby justly observed, in his evidence at the coroner's inquest, a clear proof that there had not been an explosion of the contents of the gasholder was to be seen in the slight damage done to the adjacent buildings, for had the contents of the gasholder been explosive not one stone would have been left standing on another.

The statement of facts at the inquest, pointing out the true cause of the accident, and the evidence of Dr. Letheby, have indeed completely altered the tone of the daily papers, which are now obliged to admit that the explosion was confined to the meter-house, though, for the sake of preserving some appearance of consistency, they still cry out for the removal of gas-works from populous neighbourhoods; and they demand, not without reason, that greater precautions should in future be taken to protect governors from the liability to injuries that might occasion dangerous escapes of gas. It is now generally admitted that gasholders will not explode, but those immense storehouses of highly inflammable gas are nevertheless looked upon suspiciously as portending some dire disaster. The Metropolitan Building Act, however, contains provisions for the protection of the public in this respect. Naphtha distilleries, varnish manufactories, and other manufacturing processes, are much more dangerous than gas-works, and in no instance are the gasholders immediately contiguous to other buildings. The great fire at the Hibernian Gas-Works in Dublin, in December, 1859, was, indeed, sufficient to prove that there is no special danger to be apprehended from the vicinity of gas-works. On that occasion the severe frost caused the iron hoops of a gasholder-tank that was filled with tar to burst, and the whole yard was covered with tar, which ignited, and produced a terrific blaze. Three large gasholders, fully charged, were in succession heated to redness, and rent open, and the gas rushed out in immense volumes of brilliant flame, but there was no explosion, and the neighbouring premises sustained no damage.

The only really dangerous period in the life of a gasholder is the time when it is first filled with gas, lest the issuing gas should be ignited before the air it previously contained is expelled. After that process is completed, a gasholder, of whatever capacity, becomes as safe as any other storehouse of combustible matter. The great security of the public lies in the responsibility of the proprietors of gas-works, who are liable for the consequences of any negligence on the part of those in their employ. They are bound, therefore, for their own sakes as well as for the sake of the public, to take every possible precaution against accident, and on all occasions they are ready to do so.

The evidence adduced at the coroner's inquest may be thus briefly recapitulated. The works of the London Gas Company, at Nine Elms, comprised two telescopic gasholders, about 400 feet apart, each 150 feet in diameter, with two lifts of 30 feet; and, when filled, each one contained 1 million cubic feet of gas. The accident occurred about a quarter past two o'clock in the afternoon, when the southern gasholder was quite full, and the northern one was about 38 feet high. Between the two gasholders, but within 20 feet of the northern one, was a building 79 feet long by 39 feet wide and 23 feet high, which contained the station-meter in the centre, the governors being at the eastern end, with a second floor for store-rooms, and workshops over them. The foreman's office, photometer-room, &c., were at the west end of the building, with a second floor over them. The central part, occupied by the station-meter, was open to the roof, on which was a glazed ventilator, extending the whole length of the meter-house. There was space enough in the building for a second meter of the largest dimensions, and in the south wall there was left an opening sufficient for the admission of the drum of the second meter, whenever it might be required. It was intended to close that opening with doors, but they had not been fixed, and the space was left open at the time of the accident. Two governors, one for a 36-inch main and the other for a 24-inch main, had been fixed on a stage, raised about 2 feet high, above the floor of the meter-house; and a third governor was in the course of erection. The gasholder of the larger governor was floated by an air-vessel, and that of the other governor was counterbalanced by a weight suspended from the opposite extremity of a beam, each one being kept in position by friction-

rollers acting in three guide-columns, and by three sets of friction-rollers fixed round the bottom. At eleven a.m., the outlet and inlet valves being still open, the by-pass valve of the 24-inch governor was opened, and the gas was sent to the company's gasholders at Vauxhall. At about a quarter past two o'clock an alarm was raised that gas was escaping from that governor, the gasholder of which had been tilted, and several men, who had been at work in the building, were seen endeavouring to force it back into the governor-tank. At that time the gas was rushing through the water with great violence. Two heroic servants of the company, Mr. Marven, the deputy manager, and Michael Doolan, the deputy valve-man, saw the danger, and at the imminent risk of their lives rushed into the house in the hope of preventing an explosion. Marven first extinguished the test-light which was burning in the meter-house, and then assisted Doolan in closing the valves of the governor. They succeeded in closing the outlet-valve, and had descended into the vault below the stage and had half closed the inlet-valve when the explosion took place, which destroyed the entire building and buried about thirty men beneath the ruins, seven of whom were killed. The side of the gasholder next to the north wall of the meter-house was forced in with great violence, and the crown was rent open, the sheet-iron plates being turned over outwards so as to make an irregularly-shaped aperture of about 1200 feet area. Through that aperture the gas forced its way, and, becoming ignited, blazed fearfully for a few seconds till it had all escaped, and the gasholder descended rapidly into the tank. The eastern wall of the meter-house was forced against and crushed in a portion of the front wall of some workshops about 25 feet distant; but the southern and western walls were blown into the yard without doing much damage. The effect of the explosion on the second gasholder is most remarkable. Its nearest point to the meter-house was 320 feet, but the concussion cracked the sheet-iron of the outer ring of the crown, between the rivets by which the plates were fastened to the angle iron curb, for a length of 6 or 8 feet on the side next the meter-house, and through that rent the gas escaped, and, becoming ignited, burned with great fury until all the gas was consumed. The gasholder was not further damaged, and in a few days it was repaired and again at work. One of the guide-columns against which the flame impinged curved slightly during the burning of the gas, but straightened again on cooling, though a slight crack was produced which has been temporarily repaired by hooping it; but with this exception the guide-columns of both gasholders are uninjured.

Of the persons buried under the ruins of the meter-house, seven were dead when extricated, three others died after having been taken to the hospital, and fifteen or twenty other men were more or less burned by the explosion. The escape of Marven and Doolan with trifling injuries is almost miraculous; but no damage appears to have been done to the pipes or valves in the chamber underground in which they were, and even the wooden stage immediately above them was only slightly injured. Neither is the station-meter much damaged, such injury as it has received having been occasioned principally by the *débris* falling on the sheet-iron cover; the case and the drum remaining untouched. The guides of the 24-inch governor were broken short off at the tank, but the gasholder itself was in its place, and it has been only crippled by the falling material. Thus it appears that in the very midst of the flame the gas in the governor which was the cause of the accident did not explode.

There are three ways by which gas may escape from governors as at present constructed. In the first place, by the detachment of the internal cone from the top of the gasholder, owing to the breaking of the link by which it is suspended, whereby the counterbalance weight would raise the gasholder out of the water. In the second place, the gas may escape from want of water in the tank; or, thirdly, by the accidental tilting or upsetting of the bell of the governor. The evidence at the inquest shows that the latter was the cause of the escape of gas at Nine Elms. The valve-man Bartlett stated that the "seal" was 8 inches, and as the gasholder gave a pressure of only 6 inches, there were 2 inches to spare. The cone was found after the accident to be securely suspended from the governor gasholder, therefore the accidental tilting of the bell by the plasterers at work on a scaffold in plastering the ceiling over the governor seems to be the only conclusion we can arrive at as to the cause of the escape of gas.

It is almost impossible to estimate the quantity of mixed gas and air that exploded, for the large central opening would permit all the gas below that level to pass outwards. The total capacity of the meter-house building Dr. Letheby calculates to have been 61,000 cubic feet, and the quantity of gas that might have escaped by the tilting of the smaller governor would be amply sufficient to have filled the whole area with an explosive mixture of gas and air during the few minutes that Doolan was absent to take the stock of gas. The ignition appears to have taken place at some lights in the meter-testing shop 58 feet distant from the governor. The current of mixed gas and air must have crossed a roadway between the meter-house and the workshops, and have passed through windows before its ignition; for, with the exception of a smith's fire—which was about the same distance as the lights in the meter-testing shop, but opposite to which there was not any opening in the meter-house wall—there was no other light at which the ignition could have occurred.

The verdict of "Accidental death" was the only one which the jury could have rationally given after the evidence brought before them. They evidently came to the inquiry prejudiced by the erroneous and exaggerated accounts in the papers; but as the witnesses were examined they began to see the fallacy of those representations, and felt so satisfied by the evidence of Dr. Letheby that the gasholder did not and could not explode, that they did not require any confirmation of his statements, though Professor Pole, Mr. Siemens, and Mr. Barlow were present, and were prepared to do so.

The recommendation of the jury that precautions should be taken to protect governors from being tampered with has directed the attention of gas engineers to the methods most likely to effect that object. Mr. Watson, the engineer of the London Gas Company, purposes to adopt the very effectual plan of enclosing the governors, and of carrying shafts from each through the roof into the open air. Mr. Evans, the engineer of the Chartered Company, proposes to enclose the gasholders of governors in jackets with stuffing-boxes at the top, through which the suspension-rod can pass—a plan which has been already adopted by Mr. Garnett, of the Ryde Gas-Works. Mr. Pritchard, of the Western Company, suggests a sheet-iron jacket with a small hole in the centre of the crown, just large enough for the free working of a small wire rope by which the gasholder may be suspended. The last is the simplest, and perhaps the most practicable plan. It does not in any degree affect the action of the instrument, and it has the additional advantage that the air confined in the jacket would form a cushion that would prevent the sudden rising of the cone by an increase of pressure, which has sometimes been the cause of the snapping of the link connecting the cone with the gasholder. The adoption of any one of these contrivances would, there can be no doubt, completely prevent the recurrence of such an accident as that at Nine Elms; but, above all things, we strongly recommended gas managers to see for themselves that the governors are perfectly charged with water, for which purpose a small stream might be constantly kept running through, as is done with station-meters where great accuracy of registration is desired.

The district lighted by the London Gas Company was for one night deprived of gas illumination by the damage done to their two large gasholders; but the Chartered, the Imperial, the Phœnix, and the Equitable Gas Companies promptly offered their assistance, and the lighting was resumed on the following night.

The advocates of the system of laying gas-pipes in subways ought to reflect upon what may be the consequence of constructing mines under crowded thoroughfares that are liable at any moment to be filled with mixtures of gas and atmospheric air equal in their explosive properties to the contents of the meter-house at Nine Elms, which has been the cause of such fearful destruction of life and property. The subway of the Holborn Viaduct designed by the City architect, is of proportions and construction that would involve the destruction of the whole street, were any such accident to occur; and those in course of construction by the Metropolitan Board in the Thames Embankment, and in the new street from Blackfriars to the Mansion House, though not so colossal in their proportions as that of the proposed Holborn Viaduct, partake of all its sources of danger, and the objections of gas companies to lay their mains in them will be greatly strengthened by the experience which this catastrophe has afforded. The Metropolitan Board would do well to rescind their resolution by

which these structures are being formed in anticipation of the current of public feeling becoming sufficiently strong to drive the gas companies into them at some future time, as it is evident, from the panic which this explosion has created, that the public feeling is now setting in the opposite direction.

We have noticed thus fully the explosion of the meter-house at Nine Elms, in consequence of the great interest that the announced explosion of a gasholder has excited, not only in all parts of this kingdom, but on the Continent, Managers from the largest provincial gas-works were deputed to inspect the scene of the catastrophe, and representatives from foreign gas companies also visited the works.

Circular to Gas Companies.

The special Gas Committee of the City of London appear to have a wholesome dread of extortionate demands for professional services, and have not yet accepted the offers of any of the numerous professional agitators who have been buzzing about them since their appointment by the Court of Common Council. They have wisely determined that the preliminary steps in their application to Parliament for power to make and sell gas shall be taken by their own officers, and have accordingly invited proposals for the sale of land, and for manufacturing gas by contract. In the advertisement for the former, it was specified that the land required is to be from 5 to 10 acres, situated near to London, in the eastern or north-eastern districts. The second advertisement merely states that the special Gas Committee desire to receive offers from parties or companies who are willing to contract for the manufacture or supply of gas to the citizens of London. The proposals were to be sent in on Monday, the 6th inst., and several sites, we understand, have been offered to the committee, but the one selected promises to be an expensive one, should an attempt ever be made to erect gas-works upon it, as the foundations of all large buildings would have to be carried down 20, and possibly even 50 feet, before a solid stratum was reached. Such a selection forebodes ominously against the attempt to compete with the existing companies in the supply of gas to the citizens of London; but it is, perhaps, indifferent whether the committee fix on solid ground or a quagmire for their imaginary works, as the project, they must feel conscious, will be swamped by Parliament.

It appears, from an advertisement, that Messrs. Cobden and Flintoff, as representatives of the "London Gas Consumers "Association," have succeeded in obtaining subscriptions to the amount of upwards of £250 from the metropolitan public, for the promotion of their agitation for a better and cheaper supply of gas. The association seems to be a highly concentrated body, being less numerous even than the renowned tailors of Tooley Street, who undertook to represent the British public; but so long as they are supplied with funds, the chairman and engineer may be expected to pursue their avocation, though the results may not be conspicuously advantageous.

The paragraph inserted in our last respecting the action of soda-waste on bisulphide of carbon, has attracted much attention, and has elicited the fact that all alkaline sulphides have the same property. We are thrown back, therefore, on the experiments of Professor Anderson, which have been recently recorded in a series of interesting articles in our Journal, for the sulphide of ammonium with which he succeeded, by frequent washing, in removing nearly all the sulphur compounds from coal gas, is an alkaline sulphide. The quantity of sulphur was reduced by him from 12·40 grains to 3·83 grains per 100 feet of gas, by transmitting it three times through sulphide of ammonium, and the whole of the sulphur was removed by the fourth washing. The question that remained to be determined was, whether the illuminating power of the gas was diminished by the process. Subsequent experiments, however, tended to confirm Professor Anderson's opinion, that it is quite possible to remove nearly all the bisulphide compounds from coal gas, when very strong ammoniacal liquor, containing an excess of sulphuretted hydrogen, is employed in the scrubber, without injuring the illuminating power of the gas. In the prosecution of his investigations, by experiments on a large scale at the Taunton Gas-Works, that opinion was fully confirmed; and in several instances, indeed, there was an increase in the illuminating power of the gas after it had been scrubbed. The experiments which led to these important results are fully described in the communication from Professor Anderson in our present number. These researches and the experiments with soda-waste bid fair to introduce an improved system in the purification of gas, by which the sulphur compounds that have hitherto defied removal in practical operations may be effectually absorbed.

Communicated Article.

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EXPERIMENTS ON THE ACTION OF THE SULPHIDES OF AMMONIUM UPON THE BISULPHIDE OF CARBON AND SULPHURETTED HYDROCARBONS IN COAL GAS.

Influence Exercised by "Scrubbing" Coal Gas with Sulphides of Ammonium upon its Illuminating Power.

By Alfred George Anderson, Esq.,
Professor of Chemistry in Queen's College, Birmingham.

(*Continued from page* 715.)

The portion of "unscrubbed" gas of the illuminating power equal to 14·16 candles, collected and set apart for the estimation of its sulphur, was then consumed by the single-jet burner, with the same arrangement of the sulphur determination apparatus shown at page 658 of this Journal. Five cubic feet were burned; the apparatus afterwards emptied and perfectly washed out; the fluid concentrated to a tolerably small bulk in an evaporating dish; moderately acidified with nitric acid;* filtered; precipitated by sufficient chloride of barium, and the sulphate of barium collected, washed, dried, and weighed next day: 6·46 grains of sulphate of barium were thus obtained.

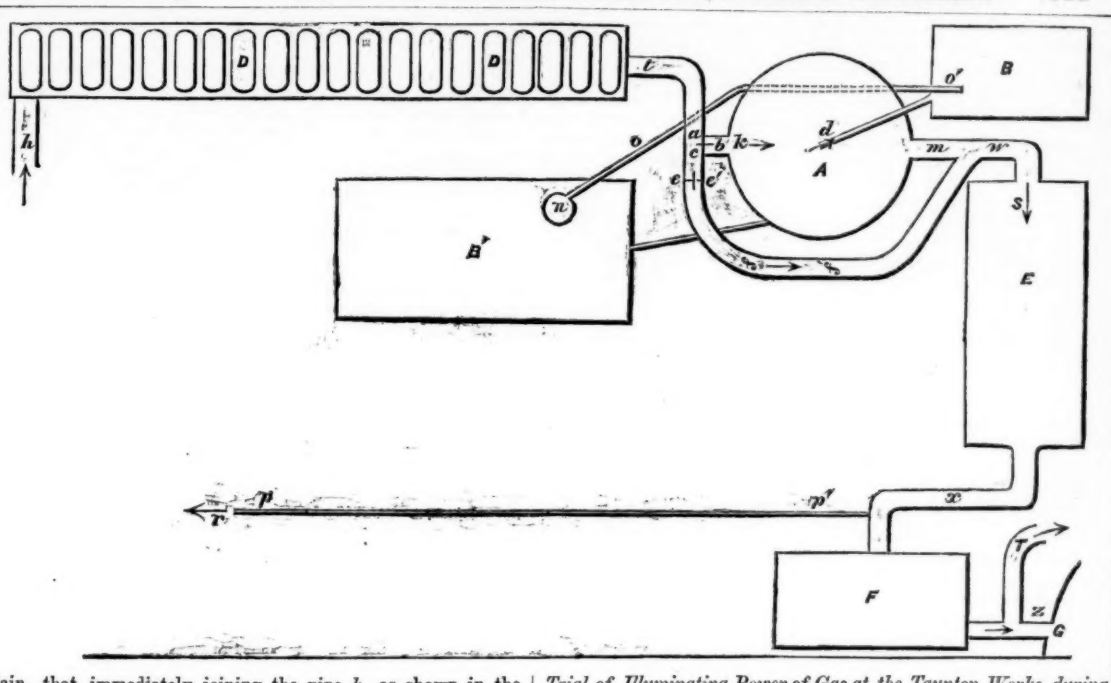
Then 5 : 6·46 :: 100 : 129·20
SO_4 Ba S SO_4 Ba S
And 116·5 : 16 :: 129·2 : 17·74.

Therefore, the proportion of sulphur in this "unscrubbed" gas was 17·74 grains in 100 cubic feet; a lower quantity than that found in the last experiment given at page 715.

The mean of the experiments B and C, in the tabulated form there given, where we can compare at a glance the quantities of sulphur in three respective bulks, each of 7 feet of the Taunton gas "washed" or "scrubbed" and "unscrubbed," is 12·92 grains of sulphur in 100 cubic feet. It would appear then, at this stage, that by the "scrubbing" with the ammoniacal liquor in the vessel figured at page 714, the Taunton Gas Company reduce the amount of sulphur in 100 cubic feet of gas from 19·8 grains to 12·92 grains, or exactly 34·74 per cent. If we compare this result again with that obtained upon the small or laboratory scale at page 570—where, upon reference, it will be observed that by the action of the five U-tube "scrubbers" of pumice and sulphide of ammonium, 14·39 grains of sulphur per 100 feet became 6·59 feet, equal to a reduction of 54·20 per cent.—we shall observe that the effect produced by the "scrubber" of the Taunton works is by no means proportionally so great as that exerted by the five U-tubes employed as "scrubbers" in my small arrangement of apparatus. At the same time that by the use of the Taunton Company's scrubber this reduction in the proportion of sulphur is accomplished, a diminution of 3·31 per cent. in illuminating power occurred; 14·16 of illuminating value possessed by the "unscrubbed" gas becoming reduced to 13·69 by the "scrubbing" treatment to which this same gas was exposed. With the present means for ascertaining the illuminating power of coal gas, even with the employment of the most improved methods at command, the difference between the values 13·69 and 14·16 are quite within the limits of experimental error; and we shall therefore be perfectly justified in assuming in this case, that by this "scrubbing" operation, and the consequent reduction of the amount of sulphur in the form of bisulphide of carbon, or sulphuretted hydrocarbons, from 19·8 grains to 12·92 grains per 100 feet, or 34·74 per cent. (nearly *thirty-four and three-quarters per cent.*), no deterioration whatever had occurred—no alteration whatever had been effected in the illumination value of the gas.

Mr. Fisher has communicated to me some experiments he made a short time since, when I first mentioned to him my desire to investigate the effect of washing gas with ammoniacal liquor upon the sulphur ingredients and illuminating power, well deserving notice here. One afternoon some gas was carefully examined in the photometrical room of the Taunton works, that which had been placed in a gasholder without having been passed through the "scrubber," being taken for the first experiment. I should

* Nitric acid was always used for oxidation at Taunton, because facilities for preparing chlorine were not at command.



explain, that immediately joining the pipe *k*, as shown in the drawing of the "scrubber" at p. 714, a T-piece is placed. One orifice, *a*, of this T-piece is joined with the condensers, which stand about eight feet to the left hand of the scrubber, as shown at DD in the drawing, which represents a ground plan, condensed in area, of condensers DD, scrubber A, ammoniacal liquor-tanks B'B, purifiers (one only being included in this sketch) E, station meter-room F, part of gasholder G, as arranged in the Taunton works. The second opening of it, *b*, is attached to the scrubber-pipe *k*; here a slide-valve is placed at *b*, so that this inlet to the scrubber may be closed or opened as desired. The third outlet, *ee'*, leads into the run of pipe *ff'*, and at the position between *ee'* a second slide-valve is placed, for the purpose of obstructing the passage of gas through that channel when required; *h* is the connexion from the hydraulic main, which latter apparatus is omittedin the drawing, and *n*, *oo'* is the pump and supply-pipe by means of which the ammoniacal liquor is conveyed as wanted from the tank sunk in the ground, B', to the high level one, B. The purpose fulfilled by the small pipe *pp'*, which it will be seen forms a communication from the main pipe situated between the purifier, E, and the meter-room, F, and the position indicated by the arrow *r* will be explained very soon.

Now it will be seen, upon examining the drawing, that upon closing the valve at *b* and opening the other valve at *ee'*, the stream of gas flowing from the condensers at *t* must be prevented travelling by any other channel than that whose course is marked in the direction of the arrows *ff's*, and that consequently with these conditions the gas would not pass through the scrubber. On the other hand, it will be equally evident that by opening the slide-valve *b*, and closing that marked *ee'*, the gas under these circumstances would necessarily pass *through* the scrubber. In both cases the current of gas eventually enters the purifier charged with hydrated sesquioxide of iron at *w*, *s*, which purifier it should be mentioned, although shown in the drawing as occupying a position very close to the scrubber, yet at the works it is a considerable distance away, which renders unnecessary the adoption of any closing-valve in the pipe *m*, when the scrubber is thrown out of use. Finally, the "scrubbed" or "unscrubbed" gas, after passing through the purifiers E, would pass by the exit-pipe *x*, by its usual course through the meter in the room F, on its road to the gasholder G, or to another gasholder by the channel arrowed at *y*, after closing the inlet to the gasholder G by shutting the slide-valve at *z*. The gas examined in this instance was that procured by alternately charging 20 retorts at each three hours interval. Thus 10 retorts would be "charged" at twelve o'clock; the second 10 at three o'clock; and the first 10 drawn and re-charged again at six o'clock, and so on. Now the first experiment made was to ascertain the illuminating power of some of this gas placed in a gasholder, and not permitted to pass through the "scrubber" in the way I have explained. This was effected by means of the photometer in the testing-room of the works, and at 4.45 p.m. Then the passage of the "unscrubbed" gas to the gasholder employed to receive it until some 9000 feet had been passed into it was cut off, and the same flow of gas was directed through the "scrubber" into another gasholder. Examinations were in turn made of this "scrubbed" gas at 5.30 p.m. and at 7.30 p.m.; all three trials, it may be remarked, being made on the same afternoon.

The table below gives the results:—

Trial of Illuminating Power of Gas at the Taunton Works, during very careful regular charging of the Retorts, "Scrubbed" and "Unscrubbed," with the Taunton Company's Ammoniacal Liquor.

Time at which Illuminating Pow. was taken.	Whether "Scrubbed" or "Unscrubbed."	Illuminating Pow. in Sperm Candles.
4.45 p.m.	Without "scrubbing."	10·6 cands.
5.30 p.m.	"Scrubber" used.	11·28 cands.
7.30 p.m.	"Scrubber" used.	13·41 cands.

We shall presently see that this somewhat anomalous and unexpected result of an increase of illuminating power, which it would appear must have been produced by the "scrubbing" operation, is capable of receiving an explanation upon a satisfactory ground, when the time comes for the description of another conclusive experiment bearing upon exactly the same point. Moreover, when the experiments above tabulated were performed, certain defects inseparable in experimenting in a gas-work upon a large scale, which will be alluded to in a short time, had not been wholly remedied.

On the 5th of October, the gas collected in one gasholder after being "scrubbed" had an illuminating power of exactly 16 candles. On the same day, the gas without exposure to the action of the "scrubber" had likewise an illuminating power of 16 candles. The same piece of candle was employed in both of these examinations, with a Sugg's steatite burner. It is quite certain that about this time most favourable opportunities were afforded for examining whether the "scrubber" exercised any prejudicial action upon the illuminating power of the gas.* The per centage of hydrocarbons removable by bromine in the "scrubbed" and "unscrubbed" gas was as well ascertained, in nearly every instance, with very great care. In employing this bromine test of "condensation," the tube was not filled with water to be in its turn replaced by the gas. The clean tube was filled with the gas by passing it into the tube through a small india-rubber tube until the atmospheric air was entirely expelled, and its place consequently occupied by the coal gas. The results of the trials of illuminating power and per cent. proportions of hydrocarbons found this day are given in the following table:—

Table showing the Illuminating Power and Proportion of Hydrocarbons in Gas "Scrubbed" and "Unscrubbed" with Ammoniacal Liquor, at Taunton Gas-Works, Oct. 5, 1865.

Illuminating Power in Sperm Candles, corrected to 2 grains Consumption per Minute.		Volumes of Gas taken for Bromine absorption.	Volumes of Gas remaining after the treatment.	Per centage of Hydrocarbons in the Gas.
"Scrubbed" gas	= 16·0*c*	*a* 99·5 vols.	95·3	4·22
		b 99·6 „	95·6	4·01
"Unscrubbed" gas	= 16·0*c*	*c* 98·5 „	94·4	4·16

NOTE.—The mean of *a* and *b*, 4·22 and 4·01, is 4·11—nearly that of the "unscrubbed" gas *c*. Early on the morning of the 6th inst., the "scrubbed" gas contained exactly 3·97 per cent. of hydrocarbons.

An obstacle to the exact comparison of results in all these experiments presented itself in the impossibility experienced of getting rid of a few hundred feet of gas remaining from the last occasion of the gasholder being filled, because it could not be completely immersed

* Several estimations of the illuminating power of this scrubbed gas upon preceding days had been made by an assistant to Mr. Fisher of undoubted accuracy. They a l closely approximated to 16 candles value. Upon the 4th inst., I found exactly 4 per cent. of hydrocarbons condensable by bromine.

and filled with water so as to expel every trace of gas remaining there. The only means of obviating this inconvenience was to cause the gas which was required for examination to flow simultaneously into the gasholder and out into the main for some hours before storing it there for the desired experiment, by which the gas whose speedy exit was desired was eventually swept with the current into the main. This operation was continued so long that final expulsion of that gas, the absence of which was of course absolutely necessary, was completely accomplished.

But to effectually obviate any chance of error from this source, a direct communication was subsequently made between the testing-room and the pipe of communication from the purifiers to the station-meter. The pipe p entering at p' into this connexion formed of 1-inch wrought-iron, continued from the arrow r to the testing-room. With this arrangement, it was an undertaking of a very easy nature to obtain a supply of "scrubbed" or "unscrubbed" gas at almost any moment in the testing-room, by the employment of the valves controlling the passage of gas through the scrubber, or otherwise, in the manner described. It is as well to mention that in making any change of this kind care was always observed to allow sufficient time to lapse for the after-flow of gas, which it was desired to examine to drive before it, until complete removal, that gas which had just previously occupied the condensers, purifiers, &c.

Besides the supply brought by this pipe $p\,p'$ to the photometer in the testing-room, this supply was likewise connected to the inlet of a gasholder employed for testing meters capable of containing 5 cubic feet. Thus this small holder could be filled at any time with a desired specimen of gas taken from the main at p'. In fact, it was generally found advisable to place the gas selected for examination previously in this holder; for, in testing the illuminating power with direct communication open to the pipe x, the high and constantly varying pressure due to the perfectly open junction with the hydraulic main was productive of much very inconvenient oscillation of the governor, and consequent fluctuation in the supply to the testing-burner.

The two following experiments, made upon the 12th of October, again show a great degree of uniformity between the illuminating powers of gas generated under conditions, with both trials, in which the utmost regularity of action in working was maintained:—

Table showing the Illuminating Power of "Scrubbed" and "Unscrubbed" Gas taken immediately after leaving the Sesquioxide Purifier.

Experiments.	Candle's Consumption.	Rate of Candle's Consumption per Hour.	Whether "Scrubbed" or not.	Illum. Power calculated to 2 grs. per Min. Consumption.
A ..	20 gr. in 10 m.	.. 120·0 gr. ..	No. ..	15·30 cands.
B ..	33 gr. in 16 m. 24 s. ..	120·73 gr. ..	Yes. ..	15.35 cands.

A confirmation of these and former results obtained upon the large scale at Taunton Gas-Works, was now sought for by the performance of further like experiments, where rigid accuracy would be attained upon the small scale with the experimental apparatus employed in the laboratory of Queen's College.

(*To be concluded in our next.*)

Correspondence.

MR. QUICK'S REPORT ON CONSTANT *VERSUS* INTERMITTENT WATER SUPPLY.

SIR,—In further reference to this subject, and as promised in my last letter, I now give "Some account of how the economy in constant supply works is secured and maintained."

To commence with, the "*Regulations*" of the company should, amongst other things, stipulate for—

Proper sizes and weights of lead pipe, tinned inside if desirable and laid at proper depths.

The best ball-cocks, screw-down stop-cocks, and draw-off cocks, made to gauge and tested.

Waste-preventing cisterns for water-closets, with stated sizes of down pipes and spreaders, satisfactorily fixed.

No waste-pipes to cisterns allowed, unless in a position where, any waste occurring, the closet could not be used, or where the waste would be annoying and easily observable.

No connexion to be made with any fittings until examined and approved by the company's representative.

All supplies, where there is a liability to waste water, to be served by meter.

The company to execute any work and repairs desired by their customers; plumbers also being allowed to do work under the company's regulations,

These arrangements, discreetly carried out, benefit both the company and the consumer, as the latter gets the best materials properly fixed, and is ensured as much water as he chooses to use, whilst the company know that nothing but the wilful act of their customer in leaving the fittings open, or their own negligence in not seeing to the repairs, can waste the water to any great extent.

But it is in "*the carrying out*" of these regulations that the whole question of economy rests. I have known instances where good regulations were a dead letter, any description of fittings being allowed, and, in consequence, a great waste of water taking place.

In this town I have, and am weekly, during the course of my examinations, coming in contact with many cases of "*light pipe*," "*pipes laid too shallow*," "*inferior fittings*," and "*improper waste-pipes*," which prove that the previously existing regulations of the company have not been attended to, either by their own servants, or the plumbers who then did the work.

The object to be sought is, *to get the fittings right to begin with, and then keep them so*; to do which I take the following very simple and almost ancient means.

At the office is kept a book in which all the requirements of the public are entered, whether for "new property to be laid on," "alterations to be made," or "repairs wanted." This part of the method catches all fish that *come* to the net, and it is surprising what a great "*take*" there is, the water office being well known, and the public being aware the company are willing to *properly* execute the fittings and repairs at a fixed scale of charges.

Those cases which do not come to the office are dealt with by the company's officials keeping their eyes and ears open when on duty, and discovering all they possibly can in the shape of leakage, or customers who should be supplied by meter; besides which the foreman goes systematically to the water-closets, and larger consumers (when his other work permits), and sees them about once in twelve months.

There is only work required to carry out this system, and a profit is made out of it, as by far the greater portion of the foreman's time is occupied in laying down service-pipes, &c., and he is the only permanent workman employed by the company in the town, having the assistance of labourers to open the ground when required.

It may be said that Cambridge being a small place, the same means cannot be applied to the London companies; but I hold with the opinion of Mr. Teague, of Lincoln, who in his letter on this subject says to the effect, "If results can be obtained in a town of 30,000 inhabitants, why not in a town of 50,000, 100,000, or any other size?" *Let the advocates of the intermittent system give their answer, and I have some certainty their reasons will prove my statements.*

The active adoption and systematic continuation of the foregoing regulations have, in less than 2½ years, resulted in the *domestic consumption* of this town (which includes water-closets, and all general trades) being reduced to 14½ gallons per head per day for a constant unlimited supply at high pressure, and I have the greatest confidence in a still further reduction. The dividend has in the same time increased from 2½ per cent. to 6 per cent. per annum, with healthy signs of progression.

I will give a few illustrations of waste which have recently occurred, or rather been discovered in this town.

1. A draper, who was paying a rate of 43s. 9d. per quarter, had a number of water-closets and two urinals included. Finding considerable waste was taking place, I attached a meter, and the consumption was above 6000 gallons per day—*about ten times the quantity he was paying for*. The fittings were then put in repair, and the consumption reduced to 1300 or 1400 gallons per day, at which rate *the company will get about three times the amount of their former rate, and also save a great quantity of water.*

2. An overflow-pipe, improperly fixed in a cistern, was found to be wasting water full bore, and about 10,000 gallons of water per day were running away uselessly.

3. At one of the colleges, a urinal was originally supplied by meter, with a jet of water turned on occasionally. The consumption was at the rate of £12 per year, when the meter was taken off, and a £12 rate agreed upon instead. I recently noticed this urinal was running full bore; and, on testing the quantity passing, found it to be at the rate of 9000 to 10,000 gallons each 24 hours. This is more than ten times the quantity intended to be agreed for, and above ten times the quantity necessary to flush the urinal.

These cases will serve to show how good regulations and a vigilant examination of fittings, with adoption of meters, will result in economy to the company, and an unlimited supply under constant high pressure for the use of the consumer.

HENRY TOMLISON.

Water-Works Office, Cambridge, Nov. 2, 1865.

Register of New Patents.

257.—WILLIAM FOSTER, of New York, but now of 12, Southampton Buildings, Chancery Lane, London, manufacturer, for "*Improvements in screw-taps, more especially designed for cutting threads in the fittings and connexions for gas, steam, and water-pipes.*" Patent dated Jan. 28, 1865.

This invention consists in so constructing and arranging the parts that the cutters may be withdrawn from their work without reversing or stopping the tap or machine in which the tap is used. In the lower part of the stock are formed two or more grooves converging downwards. In these grooves are placed cutters, which are kept from moving laterally by means of a projection upon each side thereof, passing into a recess formed on the sides of the grooves, and they are connected at their upper ends to a collar around the stock, and thus held in position. This collar

is loose on the stock, but is kept from falling down by means of a pin passing through the stock and projecting on both sides into a slot formed in the collar. These slots extend each about one quarter around the collar, and are so shaped that by turning the said collar the cutters which are attached thereto are raised or lowered as may be desired. When the pins are at their lower part on the slot the cutters are in position for working. To keep the cutters in place when at work, the lower part of the slot is made horizontal, the remainder being inclined upwards, and forming with the lower part an obtuse angle. When the cutters are completing their work the collar is held by means of handles, fixed for convenience on both sides thereof, and the spindle continuing to rotate moves the pin along the said grooves, and consequently the collar is lowered on the stock and forces the cutters down the converging grooves. By this means the cutters are set free from the thread of the screw, and readily withdrawn by turning the collar until the pin is again brought to the lower part of the groove, when the cutters are in proper position to form another thread.

311.—Frank Clarke Hills, of Deptford Kent, manufacturing chemist, for "*Improvements in effecting the combustion of fuel in the furnaces of steam-boilers and the fireplaces of stoves, and of gas in gas-burners, and in apparatus connected therewith.*" Patent dated Feb. 4, 1865.

This invention has for its object the application of heated air, instead of air at ordinary temperatures, to the ashpits or ashpans belonging to the furnaces of steam-boilers, to the fireplaces of stoves, and also to gas-burners. For this purpose the external air is heated in its passage to the said ashpits or ashpans, or gas-burners, by that which is in most cases waste heat.

In applying the invention to gas-burners, each burner is furnished with two chimney-glasses, placed one outside the other. The inside chimney-glass should be about twice the height of the outside one, which should be of such diameter as to leave a small space between it and the outside glass, so as to limit the draught of the inside chimney-glass to the desired extent, so that only a sufficient quantity of air for the combustion of the gas is heated; for if too much air is allowed to pass between the two glasses, it will not be sufficiently heated for the purpose. The space required between the two glasses will depend, in a great measure, upon the difference of height between them. In practice it is found to answer well to allow a space of about one-eighth or 3-16ths of an inch between the two glasses, the inner one being three or four inches higher than the outside one. The outside glass should be fitted into or upon an air-tight gallery or support, so as to prevent access for air to the burner, except through the annular space between the two glasses, the inner glass being mounted on an open or perforated gallery or support at a higher level, in order to allow the heated air which descends between the two glasses to pass under the lower rim of the inside glass and up to the burner. The openings in the gallery which support the inside chimney-glass are also to be limited, so as not to allow more heated air to pass than is just sufficient to effect the perfect combustion of the gas.

The claims are—first, the adaptation and application to steam-boilers and their furnaces of apparatus for the purpose of heating atmospheric air by means of what is ordinarily waste heat, and introducing such air in a heated state into the closed ashpits of such furnaces, in the manner described. Secondly, the construction of stoves in the manner described, for the purpose of effecting the combustion of fuel in the fireplaces thereof by the use of heated air introduced into the closed ashpits of such stoves. Lastly, effecting the combustion of gas by means of heated air, heated and limited in its quantity, as generally described.

342.—Romain de Bray, of Rennes, in the department of Ille et Vilaine, for "*An improved reflecting apparatus for street and other lamps.*" Patent dated Feb. 7, 1865.

These reflectors, which vary in number with the shape of the bottom of the lamp, are placed outside its glazed top. They may be larger or smaller, and more or less open, according to the shape of the lamp and the requirements of the spot to be lighted. The reflectors are formed of two parts, the one parabolical and the other flat or concave—*i.e.*, that the parabolical part is soldered to or of one piece with the plate which covers the glass, wherever it is not covered with the parabolical reflector.

This plate also forms a flat or concave reflector, according to the shape of the glass upon which it is juxta-posited. The upper glazed part or top of the lamp should be very much sloped, to give greater depth to the reflectors. Each reflector is furnished with hinges, so that it may be thrown back to be cleaned and for the cleaning of the glass which it covers. The effect of the light thrown by these reflectors upon the shadows produced by the lateral ribs of the lamp is to destroy them; but to obtain this result more surely, the reflectors may be placed so that their outer centre comes above the lower ribs. Round lamps lend themselves readily to this combination.

344.—William Sim, of Glasgow, for "*An improved method of, and improvements in apparatus for, extracting gases from mineral oils, and employing the same for illuminating purposes.*" Patent dated Feb. 7, 1865.

This invention relates to the employment of the gases produced by the vaporization of mineral oils for illuminating purposes as substitutes for coal gas, and it is intended, chiefly, to employ these in lieu of the latter in places where it is difficult and expensive to carry the coal from which the gas is extracted.

One kind of apparatus for producing the gas consists of a vessel to hold the oil, from the bottom or sides of which a tube or tubes project, through which the oil is led by its gravitating power, or otherwise, and, in falling, drops or is projected upon a heated plate, retort, or vaporizer made of metal, earthenware, or other suitable material, upon coming into contact with which it is vaporized, and the gas thus formed carried through a hydraulic main, washers, and purifiers into a gasholder, from which it is conveyed by pipes or ducts to places where it may require to be burnt as coal gas ordinarily is.

Instead of vaporizing only a drop or drops of oil at a time, a quantity of it may be placed in a suitable vessel or holder, and vaporized by the heat from a suitable fire, after which it is led away to a gasholder, and thence to be burned as described in reference to the former modification.

Under another method of carrying this invention into practice, and when using oils containing a high proportion of carbon, instead of employing water to produce the hydrogen required to form a burning mixture with the oil of the free carbon, a portion of peat or wood, either combined or separately dried to any required extent, may be placed in the retort, and the illuminating gases produced from them allowed to mingle with the illuminating gases of the oils, whilst the surplus hydrogen contained in the water of the peat or wood, as well as the oxygen, mixes with the free carbon of the oils, and thus the whole of the free carbon of the oils is utilized.

408.—Edward John Cowling Welch, of Harrow, engineer, for "*Improved apparatus for supplying, with a constant and regular pressure, air to burners for consuming or burning hydrocarbons for illuminating purposes.*" Patent dated Feb. 13, 1865.

The object of this invention is to cause a constant stream of air, at a uniform pressure, to pass through a vessel containing any suitable liquid hydrocarbon, for the purpose of producing a combustible vapour capable of being burned or consumed in burners in the same way as ordinary gas.

The apparatus employed for the purpose consists of a pair of pumps or exhausters, each of which is formed of a drum made either of tin or other metal, closed air-tight at the top. Down the centre of the drum is a metal tube, passing a few inches above the top. This drum is placed open and downwards into another vessel of similar form, but a few inches larger in diameter, which is provided with a central iron rod, which passes up the tube in the other vessel. This tube is closed at the top, and has either a strong hook or eye. Inside the tank or reservoir are two tubes passing from the bottom to the top, one of which is open at the top, and the other has a small flat brass plate on it cut out for the tube to pass through, and is made to carry a valve formed of a small piece of vulcanized india-rubber about 1-16th of an inch thick, which covers the mouth of the pipe and acts as a valve, opening outwards. The tube with the valve at the top is open at the bottom to admit air from the outside; while the tube which is open at the top is connected at the bottom, by a horizontal pipe, to the valve-box. The other drum is provided with pipes and valves in a similar manner; and the pipes from each of the drums terminate in the valve-box, where they are provided with india-rubber valves. An exit-pipe communicates with a receiver. These two drums are made to balance each other, and are supported by means of chains from axes at the ends of a vibrating lever, which may be either worked by a lever on the centre pin, so that the drums are moved alternately up and down, or by means of a connecting-rod jointed at its lower end to a crank, which is driven by clock-work or any other prime mover. The tanks in which the drums work are filled with water to within an inch of the tops of the tubes.

436.—George Tyrrill Humphris, of Church Street, Walton-on-Thames, pump-maker and engineer, for "*Improvements in pumps, and in apparatus for working the same.*" Patent dated Feb. 15, 1865.

In pumps which are worked by cranks and ordinary spur-gear, the speed of the piston or bucket in the up and down stroke is the same, whereas the power required to make the one may be several times that required for the other. In order to equalize the work, and at the same time to avoid concussion at the ends of the stroke, and to render the flow of water in the suction-pipe more uniform in speed, the following arrangement of gear is employed:—On the driving-axis is mounted an eccentrical and elliptical spur-wheel; and arranged in gear with it, and on opposite sides, are two other similar elliptical wheels, mounted on the axes of two cranks, which each give motion to one of a pair of pumps. Each cranked axis is thus rotated at a varying speed, with a minimum and maximum at half a revolution apart; and the cranks are so placed on the axes that the minimum speed comes at or by preference somewhat before the middle of the stroke of the pump.

447.—William Edward Newton, of 66, Chancery Lane, London, civil engineer, for "*Improvements in apparatus for distilling petroleum and other volatile liquids, and for making gas.*" A communication. Patent dated Feb. 16, 1865.

This invention consists in the construction in stills for rectifying petroleum and other oils, or producing illuminating or other oils or gases from any substance capable of treatment by heat, of a combustion-chamber or its equivalent, within the retort; also in arranging the furnace or burner by which the heat is communicated or created, so that it and the flames or incandescent fuel can be moved nearer or further away from the retort, according to the conditions of the works.

The improvements are applicable to apparatus for making gas and oils from coal and carboniferous shale, or other solid substances, the retort being in such cases made of sufficient strength, and the steam-pipe so protected or combined with the walls of the retort as not to be liable to injury from contact with the coal; and it is intended to use these improvements in the manufacture of gas and oils from these materials.

451.—Richard Smith, of Cumming Street North, Pentonville, for "*Improvements in treating sewage, and in arranging apparatus in sewers and culverts to facilitate the ventilation of such structures.*" Patent dated Feb. 16, 1865.

According to this invention, transverse floating-valves are applied to the sewers at certain intervals apart, which valves rise and fall with the sewage which for the time is running through the sewers. The spaces between the valves being separated one from the other, the travelling of the gases along the same is prevented, and the ventilation of the sewers in sections is facilitated either by chimney-shafts or otherwise.

In order to disinfect sewage, peat, sawdust, or other ligneous fibrous matters, are employed, saturated or impregnated with sulphurous acid or superphosphate of lime. The peat or sawdust, or other ligneous fibrous matters, are first dried as perfectly as possible, to drive off all the moisture, and then the sulphurous acid or superphosphate of lime is combined therewith, the product being mixed with sewage matters. In some cases such dried materials are saturated with diluted sulphuric acid, but not of such a strength as to char the fibrous matters. Soot is also applied to sewage for the same purpose.

In ventilating sewers and culverts, whether of chimney shafts or by fans, or other mechanical means, the exhaustion thereby obtained is taken

advantage of, and the sewers or culverts are arranged to receive the smoke from chimneys of contiguous houses, and the chimneys and flues are arranged to act by a downward draught so that the smoke may pass into the culverts, which it will easily do by reason of the exhaustion therein. Steam is also caused to flow into and pervade the culverts, and by the joint action of the steam and the smoke, the sewage waters in the culverts or sewers are disinfected.

478.—Joseph Clift, of Wortley, near Leeds, fire-brick manufacturer, for "*An improvement in the utilization of the waste gases of blast-furnaces.*" Provisional protection only obtained. Dated Feb. 20, 1865.
It has heretofore been common to use the gases generated in the blast-furnace for heating the hot-air stoves, and for generating steam in boilers, and for some other purposes. This improvement consists in the use of those gases, or a portion of them, by blowing them back into the blast-furnace itself, or by carrying them into another blast-furnace in the same works, either along with or separate from the air which is blown into the furnace.

496.—William Edward Newton, of 66, Chancery Lane, London, civil engineer, for "*A new and improved balanced slide-valve.*" A communication. Provisional protection only obtained. Dated Feb. 22, 1865.
The object of this invention is to balance the pressure of the steam on the back of a slide-valve, in such a manner that the same will work equally free under a pressure of 100 lbs. or more to the square inch, as it does in the open atmosphere. This is accomplished by combining with the valve a small cylinder, in which works a piston, and through a series of intervening levers, rockers, and links, the upward pressure of steam on the piston is made to counterbalance the downward pressure on the back of the valve, and the valve is therefore perfectly balanced. The bottom of the valve-chest forms the seat for the slide-valve, and a reciprocating motion is imparted to this valve in the usual manner.

500.—James Nicholas, of Aspull, near Wigan, oil-refiner, for "*Improvements in producing oil and coke from coal and slack.*" Patent dated Feb. 22, 1865.
This invention consists in a process of and apparatus for producing oil and coke from coal and slack, which process admits of the condensable gaseous and aqueous vapours being condensed and collected in the same form in which they would be procured if the coal or slack were distilled simply in order to procure oil. The oven, chamber, or vessel in which the coal or slack is to be treated may be of any convenient shape or size, and should be capable of being made steam-tight, and on its crown or top have two apertures, one communicating with a condenser so arranged that the communication can be opened or shut at any time, the other aperture leading to the air, and also being capable of having its communication opened or closed at pleasure. The oven, chamber, or vessel should have a door for the purpose of charging and discharging, and should have draught holes at the sides, or in other convenient position. The chamber, oven, or vessel is charged in the usual manner for making coke with coal or slack, the draught holes and all apertures being carefully closed with the exception of the aperture leading to the condenser, which is left open. The coal or slack is then heated to a temperature sufficiently high to discharge the oil and condensable products, which, as they are evolved, pass to the condenser, where they are condensed in the usual manner, and there leave a mixture of coal, oil, and ammoniacal water matters; these are, as usual, separated the one from the other, and the oil, if necessary, may be purified. If the mass in the oven were at once drawn out, it would be a soft coke; if a harder coke be wanted, the aperture to the condenser is shut, and the other aperture opened with a sufficient number of draught holes to produce proper combustion, after the manner of ordinary coking ovens; and this combustion is allowed to continue until coke of the required hardness is produced. By these means coke is produced suitable for all purposes for which coke is required. The gaseous and aqueous vapours are collected and condensed.

521.—William Oram, of Salford, hydraulic engineer, for "*Improvements in hydraulic pumps in connexion with engines of motive power.*" Provisional protection only obtained. Dated Feb. 24, 1865.
This invention consists in arranging two pumps, one at each end of the steam-cylinder and piston, and attaching the plunger of one pump to the cross-head at the end of the piston-rod; a forked connecting-rod being employed between the cross-head and the crank-shaft, so that the pump may occupy the space between the forks, and in a direct line with the steam-cylinder. The plunger of the other pump is attached to the end of an extended part of the piston-rod passing through a stuffing-box in the opposite end of the cylinder, so that one steam-cylinder and piston placed directly between the two pumps works them both.

528.—James Nicholas, of Aspull, near Wigan, Lancaster, for "*Improvements in converting coal oil into gas suitable for use as an illuminator.*" Provisional protection only obtained. Dated Feb. 24, 1865.
This invention consists in allowing a stream of the oil to come in contact with a heating surface capable of decomposing the oil into gas. The stream of oil is carried into a retort or other vessel heated to a full red heat; and the gas thus obtained is first conducted either through the ordinary purifiers used in the purification of common coal gas, or into a gasometer direct. The gas may be burned by any of the modes at present used in the consumption of ordinary coal gas as an illuminating agent.

APPLICATIONS FOR LETTERS PATENT.

2793.—Edward Meldrum, of Bathgate, Linlithgow, gentleman, for "*Improvements in the distillation of coal and shale, and in the apparatus employed therein.*" Oct. 30, 1865.

2799.—David Blair White, of Newcastle-upon-Tyne, M.D., for "*Improvements in ventilators for windows and other like openings.*" Oct. 31, 1865.

2804.—Arthur Deslandes, of Manchester, Lancaster, professor of French, for "*Certain improvements in the manufacture and production of metallic pipes, tubes, or other similar hollow castings.*" A communication. Oct. 31, 1865.

2808.—Henry Young Darracott Scott, of Ealing, Middlesex, Lieut.-Colonel in the Royal Engineers, for "*Improvements in the treatment and deodorization of sewage water.*" Oct. 31, 1865.

2818.—Charles Henry Wood, of Jewry Chambers, Aldgate, analytical chemist, and Edward Louis Barrett, of Thrawl Street, Spitalfields, London, manufacturing chemist, for "*An improved mode of purifying gas.*" Nov. 1, 1865.

2833.—James Webster, of Birmingham, Warwickshire, engineer, for "*Improvements in generating and applying certain gases, and in apparatus to be employed therein.*" Nov. 2, 1865.

2848.—William Brett, of the Gas-Works, Hertford, Hertfordshire, for "*An improved truck or barrow for wheeling and tipping coke, coal, or other substances.*" Nov. 4, 1865.

GRANTS OF PROVISIONAL PROTECTION.

2453.—William Edward Newton, of 66, Chancery Lane, London, C.E., for "*An improved construction of engine, which can be used either as a motor or for pumping.*" A communication. Sept. 25, 1865.

2465.—Alfred Vincent Newton, of 66, Chancery Lane, London, mechanical draughtsman, for "*An improved mode of decarbonizing retorts.*" A communication. Sept. 26, 1865.

2549.—James Webster, of Birmingham, Warwickshire, engineer, for "*Improvements in gas-meters.*" Oct. 4, 1865.

2614.—Richard Abell, of Cambridge Terrace, Pimlico, London, carpenter, for "*Improvements in trapping and ventilating sewers.*" Oct. 10, 1865.

2622.—William Edward Gedge, of 23, Southampton Buildings, Chancery Lane, London, for "*Improvements in double or single action pumps.*" A communication. Oct. 11, 1865.

2706.—Charles Denton Abell, of 20, Southampton Buildings, London, for "*Improvements in rotary pumps.*" A communication. Oct. 20, 1865.

2745.—Hyde Bateman, of Barnes, Surrey, surveyor, and Edward Gooch Garrard, of Vauxhall, wine merchant, for "*Improvements in the construction of pumps for raising or forcing water or other liquids or fluids.*" Oct. 24, 1865.

2793.—Edward Meldrum, of Bathgate, Linlithgowshire, gentleman, for "*Improvements in the distillation of coal and shale, and in the apparatus employed therein.*" Oct. 30, 1865.

2799.—David Blair White, of Newcastle-upon-Tyne, M.D., for "*Improvements in ventilators for windows and other like openings.*" Oct. 31, 1865.

NOTICES TO PROCEED.

1674.—Edward Kenworthy Dutton, of Sale, Chestershire, merchant, for "*Certain improvements in apparatus for measuring and indicating the flow of liquids.*" June 22, 1865.

1737.—William Schofield, of Haywood, Lancaster, manager of the Haywood Gas-Works, for "*Improvements in the manufacture of gas-retorts and other articles made of fire-clay, and in furnaces for burning the same, and for other purposes.*" June 30, 1865.

1749.—James Atkins, of the firm of Robert Walter Winfield and Co., of Birmingham, Warwickshire, merchants and manufacturers, for "*Improvements in the manufacture of certain kinds of metallic tubes and rods, and in ornamenting metallic tubes and rods.*" July 1, 1865.

1866.—John Paul Baugh le Patourel, of 11, Garden Reach, Calcutta, Bengal, East Indies, and of Piette House, Guernsey, Europe, in Her Majesty's service, honourable Company's marine, for "*Improvements in ventilators.*" July 18, 1865.

1893.—Richard Clark Bristol, of Chicago, Illinois, U.S.A., for "*Improvements in slide-valves.*" July 20, 1865.

1896.—Charles Ross Bamber, of Jersey, commander, R.N., for "*A new or improved apparatus for producing the magnesium light.*" June 24, 1865.

1915.—Matthew Piers Watt Boulton, of Tew Park, Oxfordshire, for "*Improvements in obtaining motive power when heated air or aëriform fluid is employed.*" July 22, 1865.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

2883.—Joseph Chattwood, "*Improvements in ventilating rooms and cellars.*" Oct. 27, 1862.

2907.—Abraham Ripley, "*Improvements in the construction of pistons for steam-engines, which improvements are also applicable to air and liquid pumps.*" Oct. 29, 1862.

2961.—James Winter, "*An improved safety tap or cock applicable to gas-burners, gas-pipes, and vessels containing gas, also water-pipes, steam-pipes, and vessels containing inflammable and other liquids, compressed air, and spirituous liquors.*" Nov. 1, 1862.

2966.—Frederick Trachsell and Thomas Clayton, "*Improvements in machinery or apparatus for obtaining light, heat, and ventilation, parts of which improvements are also applicable to other purposes.*" Nov. 3, 1862.

2968.—Edward Humphrys, "*Improvements in the construction of centrifugal pumps.*" Nov. 3, 1862.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £100 BEFORE THE EXPIRATION OF THE SEVENTH YEAR.

2412.—Pierre Brunon, "*An improved mode of manufacturing cocks.*" Oct. 29, 1858.

2467.—Richard Archibald Brooman, "*Improvements in treating air and gases, and the employment of the same for obtaining motive power.*" Nov. 4, 1858.

Miscellaneous News.

BAHIA GAS COMPANY, LIMITED.

The Ordinary Half-Yearly Meeting of this Company was held at the Offices, Cloak Lane, Cannon Street, on Tuesday, October 31—H. POWNALL, Esq., in the chair.

Mr. A. CLARKE, the secretary, read the notice of meeting, and the following report and statements of accounts were then presented:—

The directors have to report to the shareholders an improvement in the working of the company during the past half year.

The balance-sheet for the half year to the 30th of June last, appended to this report, shows the financial position of the company. The profits for the half year amount to £3059. 19s. 10d., which, together with £31. 15s. 6d., the unappropriated profit of the preceding half year, makes the available balance £3091. 15s. 4d. Out of this the directors recommend the declaration of a dividend on the preference capital, at the rate of 10 per cent. per annum for the half year, amounting to £1308. 10s., and a dividend at the rate of 3 per cent. per annum for the half year on the ordinary capital of the company, amounting to £1500, both payable on and after the 20th of November; the balance of £283. 5s. 4d. to be carried forward to the profit of the succeeding half year.

The following is the engineer's report:— "*June* 30, 1865.

"In presenting to you my half-yearly report of the state of your works, I have little to add to that of last half year.

"The machinery and retorts are in efficient working order, and the buildings are kept in good repair.

"The lamps and services are also in a state of good repair.

"Number of Public lamps to date	1875	increase	5
" Private lights "	2632	"	428
" Meters fixed "	321	"	66

"The remaining 125 public lamps will be fixed directly the rainy season is over.

"The increase this half year has been much more satisfactory than formerly, as a large portion of it has been in private houses, from which a larger consumption may fairly be expected than from the retail shopkeepers, who were the general consumers."

Mr. M. H. Blount having resigned his seat at the board, the directors have elected Mr. John Blount to fill the vacancy, subject to confirmation by the shareholders.

The directors going out of office by rotation are John Aird, jun., Benjamin Cooke, and Henry Pownall. These gentlemen being eligible for re-election, offer themselves to the shareholders for that purpose.

The auditor going out of office by rotation is James Samuel Burslem, who, being eligible for re-election, offers himself to the shareholders for that purpose.

Balance-Sheet, to June 30, 1865.

Dr.			*Cr.*		
To Capital paid up		£126,170 0 0	By Concession		£ 7,000 0 0
Loan account		3,000 0 0	Investment	£81,864 9 9	
Creditors		1,327 7 5	Freehold land	3,189 2 2	
Dividends unpaid		37 5 3			85,053 11 11
Revenue account—			Meters fixed		615 8 4
For profit to Dec. 31, 1864	£2,381 5 4		Office furniture and fixtures		232 6 0
Less dividend and income-tax	2,349 9 10		Preliminary expenses		16,914 17 3
Leaving unappropriated	£ 31 15 6		Debtors, for amounts due for fittings, gas-rental, meter-hire, and residual products		4,320 0 4
Half year's net profit to June 30	3,059 19 10		Stock—		
		3,091 15 4	Coals	£ 6,863 6 5	
			Coke	252 9 0	
			Fittings	5,606 19 2	
			Meters	353 5 0	
			Main and service pipes, lamp columns, and other materials	3,742 6 10	
					16,818 6 5
			Goods in transit		247 18 0
			Bills receivable		2,000 0 0
			Cash at bankers—		
			General account	£ 371 14 6	
			Dividend ditto	52 5 3	
					423 19 9
		£133,626 8 0			£133,626 8 0

Revenue Account, for the Six Months ending June 30, 1865.

Dr.			*Cr.*		
To Coals carbonized, 1534¼ tons		£3,351 14 5	By Gas supplied, as under:—		
Lime used for purifying		58 15 11	Public lights	£7,618 8 8	
Carbonizing wages		741 6 5	Private consumers and public establishments	2,022 3 9	
Lamplighters ditto		1,170 0 0			£9,640 12 5
Wages for loading coke, &c.		202 8 1	Meter-rental		118 10 5
Salaries—			Coke sold and in stock		658 6 0
At Bahia	£ 966 9 9		Tar sold		20 15 3
In London	175 0 0		Profit on fittings		267 5 4
		1,141 9 9			
Auditors fees		10 10 0			
Rent and taxes		60 9 0			
Interest, for interest on loans	£ 73 14 6				
Ditto, discount on bills receivable	39 4 10				
		112 19 4			
Stationery, printing, and advertisements		21 14 8			
Office expenses		33 12 9			
Medical attendance		33 15 0			
Keep of horses		57 15 9			
Trade charges		144 16 11			
Repair and maintenance of public lamps		190 12 2			
Wear and tear		251 11 6			
Repairs of meters		59 12 11			
Law charges		2 5 0			
Balance—net profit for the half year		3,059 19 10			
		£10,705 9 5			£10,705 9 5
			Balance—net profit for the half year		£3,059 19 10
			Ditto—unappropriated last half year		31 15 6
			For appropriation		£3,091 15 4

The CHAIRMAN said he had very few observations to make on the present occasion in moving the adoption of the report, although perhaps, in looking over the statements of accounts, he might notice one or two items upon which the proprietors would be glad of some further information. The first remark had reference to the item "Investment," the amount of which it would be perceived was larger than appeared in the last half year's balance-sheet. At that time it was £80,982; it was now £81,864. This arose from the outlay of £319 for mains, £369 for services, and £193 for a new engine-house. In the revenue account was an item of £58. 15s. 11d. for lime, which charge had not appeared in the accounts before, Mr. Jones having previously used oxide of iron and clay. The "Carbonizing wages" would be found to have somewhat increased. This arose from the development of the company's business, and the larger quantity of gas manufactured. The third item, "Wages for loading coke," was a new item. It arose, he was happy to state, from the sale of that product having so increased that the manager had been obliged to employ persons specially to deliver it out, whereas formerly this service was included in the general wages account. The sale of coke, too, had very much increased since these accounts were made up. In July, 1864, the sale amounted to only £49. 10s.; last July it was £92. 2s. 9d. In August, 1864, it was only £56. 9s. 6d., while in August this year it was £132. 6s. The supply of gas to persons residing in private houses had not progressed so much as had been anticipated, but the number of lights in shops had very considerably increased. The receipts of the company were satisfactorily extending. In July, 1864, they amounted to £1470. 3s.; in July of this year they were £1732. 10s., being an increase on the corresponding month of £262. 7s. In August, 1864, they were £1518. 1s. 6d.; and in August this year they were £1693. 16s., making the increase in the two months of 1865 no less than £457. 8s. 6d. over the receipts of the corresponding period of 1864. He trusted, therefore, that they might congratulate themselves upon having, if he might use the phrase, successfully turned the corner, and that their prospects were much brighter than they had ever been before. The directors were, as would be seen by the report, only enabled to declare a dividend at the rate of 3 per cent. on the ordinary capital of the company, but, looking to the facts he had just stated, he thought, as they had begun to increase, they would go on progressing, and that when they had the pleasure again to meet the proprietors they would have even a more satisfactory report to lay before them than they had at present. With these remarks, he moved—"That the report and accounts be received, adopted, and entered on the minutes."

Mr. CROLL seconded the motion.

Mr. NICHOLSON called attention to the heavy charge for lamplighters wages, £1170, in the half year, the total number of public lights being only 1875.

The CHAIRMAN said the wages paid to these men in Bahia was very high, and he might state that the manager could not get one of them to undertake to light more than 45 lamps a night.

Mr. CROLL said that in London a man generally lighted about five score, for which he was paid at the rate of 4s. per score per week, making the cost of lighting per annum upwards of 10s. per lamp; but in Bahia the men had not as yet been able to do more than about 40 per night, consequently the charge was very high as shown in the accounts.

Mr. AIRD said from the experience of his firm he could safely state that labour in Brazil invariably cost three times as much as it did in this country.

After some conversation on this point, in which Mr. H. P. Stephenson and Mr. Maughan took part, the motion was put and carried unanimously.

The dividend as recommended in the report was then declared, and the retiring directors, Messrs. Aird, Cooke, and Pownall, and the retiring auditor, Mr. Burslem, were severally re-elected.

The election of Mr. John Blount by the directors to the seat vacant through the resignation of Mr. H. Blount was confirmed.

On the motion of Mr. LETCHWORTH, a cordial vote of thanks was given to the directors for their services.

The CHAIRMAN, in acknowledging the vote, said the directors felt great gratification in receiving this mark of the approval of their constituents with regard to the past conduct of the affairs of the company, and for the confidence reposed in them for a further period of service. He could assure them the directors had but one object in view, and that was to make the company as prosperous as possible. It would give them unfeigned pleasure should the extension of business enable them to recommend a larger dividend on the next occasion, and he hoped that for many years to come they would have to congratulate the proprietors on the growing prosperity of the concern.

CHARTERED GASLIGHT AND COKE COMPANY.

The Half-Yearly Meeting of the Shareholders of this Company was held on Friday, the 3rd of November, at the Offices in Horseferry Road—S. ADAMS BECK, Esq., in the chair.

The following report and statement of accounts having been previously circulated amongst the proprietors, were taken as read.

The accounts for the half year ending at Midsummer last, which the directors now submit to the shareholders, exhibit few, if any, features of novelty, but manifest, nevertheless, the continuance of a steady and solid prosperity, attributable, it is believed, in no greater degree to the continued increase of rental arising from the daily extending demand for gaslight, than to the principles which the directors have laid down for their own guidance in the conduct of the business of the company, and the performance of its duty to the public. The effect on the profits of the company of a reduction in the price of gas so large as that of which public notice has been given, and to which allusion was made in the last half-yearly report, remains, it is true, still to be tested; but the experience of other metropolitan gas companies whose financial position has enabled them to make, at an earlier period, the reduction in price contemplated by the Metropolis Gas Act, has amply demonstrated that but little danger of permanent loss is, under moderately favourable conditions, incurred by such a step.

The rapid development of the various uses other than for lighting purposes to which gas may be applied, and the necessity for being prepared to meet all demands upon them, has determined the directors to ask of Parliament, in the ensuing session, an extension of the company's existing powers; and, by the bill which will be laid before the House, the directors will seek, not only to enlarge the manufacturing and other capabilities of the company, but also to relieve it of the trammels of obsolete and obstructive legislation, and to bring it within the scope of that of a more modern date. The directors having entered into a contract for the purchase, subject to the approval of Parliament, of an extensive plot of land, on which it is intended to erect an additional and entirely new station, a prominent object of the bill will be the confirmation of this contract, and the raising of money to carry it into effect.

In the meantime, and pending the decision of Parliament, the directors will abstain from undertaking more than the completion of extensions now actually in progress; and, to meet the outlay required for that purpose, they will propose to the general court of proprietors to sanction a further call upon the fourth capital of the company of £5 only per share, to become payable on or before the 26th day of December next.

The profits for the half year to Midsummer being equal to a dividend at the rate of £10 per cent. per annum on the present capital, with the addition of a bonus equal to £1 per cent. per annum on the amount of capital called up at Midsummer, 1859, the directors have the pleasure to recommend that such dividend and bonus be paid; and they will accordingly be transmitted in the usual manner to the shareholders through the Post-Office, on the 6th day of November next.

Profit and Loss Account, from December 25, 1864, to June 24, 1865.

Dr.				*Cr.*		
To Coals consumed in the half year, including labour			£71,781 4 1	By Rental of light for the half year		£138,899 13 8
Stores, &c., used in the half year, viz.:—				Coke and breeze, deducting labour, viz.:—		
Retorts and setting, including labour		3,549 10 3		Coke	£21,146 9 10	
Lamps and lamp lighting, ditto		2,203 0 2		Breeze	1,410 3 5	
General wear and tear, and mains	£8,521 5 2					22,556 13 3
Less received for old and burnt stores	841 8 4			Tar and other products, deducting labour		4,432 7 9
		7,679 16 10		Discounts and abatements allowed by tradesmen for cash payments		1,592 13 7
Carrying on the works		3,178 17 5		Poplar station rent account, balance		12 4 10
Meters and fixing, including labour		3,041 8 1		Rents received		408 7 3
Paving		693 2 11		Interest received on deposits at bankers		161 7 5
Directors and auditors		1,276 16 0				
Salaries and commissions		6,744 1 5				
Wages and contingencies, viz.:—						
Wages	£15,498 2 4					
Contingencies	948 19 7					
		16,447 1 11				
Rent and taxes, viz.:—						
Rent	£ 969 19 1					
Taxes	3,249 18 2					
		4,219 17 3				
Income-tax		1,599 3 4				
Law expenses		703 14 3				
Parliamentary ditto		332 7 0				
Annuities to superannuated officers		405 0 0				
Sick and benevolent fund		130 0 0				
Debts due, being bad, written off	£ 650 2 4					
Received on bad debts	32 7 11					
		617 14 5				
Depreciation of gasholder and coal-store on leasehold property		60 0 0				
			£124,662 15 4			
Balance			43,400 12 5			
			£168,063 7 9			£168,063 7 9

Balance-Sheet, June 24, 1865.

Dr.				*Cr.*		
To 1st, 2nd, and 3rd capitals	£600,000 0 0			By Amount due to the company, viz.:—		
Fourth capital	180,000 0 0			For rent of light at the several stations, viz.:—		
			£780,000 0 0	Westminster station	£35,977 17 5	
Expended, viz.:—				Brick Lane ditto	13,540 3 0	
Westminster station—				Curtain Road ditto	7,556 11 0	
Balance at Christmas	£457,824 14 4					£57,074 11 5
Expended this half year, viz.:—				For coke and breeze sold at the stations, viz.:—		
On new property	£ 7 15 4			Westminster station	£1,842 5 2	
Ditto works	8,071 3 4			Brick Lane ditto	1,681 7 10	
	8,078 18 8			Curtain Road ditto	297 14 7	
		£465,903 13 0				3,821 7 7
Brick Lane station—				For tar and other products sold at the stations		18 12 4
Balance at Christmas	£173,964 8 8			Balances of sundry accounts due to the company		2,032 17 8
Expended this half year, viz.:—				Treasurer's accounts, viz.:—		
On new property	£ 1 14 4			Balance of general account	£12,875 11 5	
Ditto mains	816 15 2			Ditto of dividend ditto	1,353 11 6	
	818 9 6					14,229 2 11
		174,782 18 2		Amount placed on deposit		10,000 0 0
Curtain Road station—				Cash advanced to pay wages at the stations		1,090 0 0
Balance at Christmas	£87,964 3 2			Stores on hand, viz.:—		
Expended this half year, viz.:—				Westminster station	£2,112 17 1	
On new property	£ 2 2 0			Brick Lane ditto	2,069 0 6	
Ditto mains	175 19 5					4,181 17 7
	178 1 5			Coals on hand, viz.:—		
		88,142 4 7		Westminster station	£10,916 17 11	
			728,828 15 9	Brick Lane ditto	5,367 8 6	
			£51,171 4 3	Curtain Road ditto	1,495 13 1	
Dividends remaining unpaid			6,283 17 5	On shipboard	949 16 4	
Debts due by the company for coals, and to sundry tradesmen and others			8,543 18 8			18,729 15 10
Amount due to collectors for commission, viz.:—				Coke and breeze on hand, viz.:—		
Westminster station	£ 747 13 2			Westminster station	£ 29 6 10	
Brick Lane ditto	320 12 4			Brick Lane ditto	95 17 6	
Curtain Road ditto	170 19 5			Curtain Road ditto	121 7 8	
		1,239 4 11				246 12 0
Amount due for wages and contingencies, viz.:—				Tar and other products on hand		216 16 10
Westminster station	£ 511 0 2			Ship *Dispatch*		826 2 3
Brick Lane ditto	348 13 7			Contingent-fund, invested in the purchase of £19,541. 11s. 11d. Reduced Three per Cent. Annuities		18,415 12 2
Curtain Road ditto	105 4 7			Depreciation-fund, for gasholder and coal-store on leasehold property, invested in the purchase of £715. 5s. 3d. Reduced Three per Cent. Annuities		653 4 1
		964 18 4				
Amount due at chief office for contingencies		4 12 10				
Balance of profit and loss, viz.:—						
Balance to Dec. 25, 1864	£47,273 17 10					
Less half year's dividend on £780,000 and bonus	47,023 10 0					
	£ 250 7 10					
Profit of the half year to Midsummer, 1865	43,400 12 5					
		43,651 3				
Contingent-fund at Christmas, 1864	£18,668 6 10					
Add dividend received on amount invested	285 15 1					
		18,95				
Depreciation-fund, for gasholder and coal-store on leasehold property, at Christmas, 1864	£ 653 4					
Add dividend received on amount invested	10 9					
Ditto proportion for this half year	60 0					
		131,536				£131,536

The CHAIRMAN said, I will first of all give you the usual statement of the comparative working of the company for the corresponding period of last year and the present, which shows the following results:—The total amount of coals used in the half year ending 24th June, 1864, was 76,175 tons, at a cost of £66,300, being at the rate of 17s. 5d. per ton; ditto for the half year ending June, 1865, 80,043 tons, at a cost of £71,781, being at the rate of 17s. 11¼d., and showing an increase in quantity of 5 per cent., and in money of 8¼d. per ton. The quantity of gas made in the June half year of 1864 was 691,763,000 cubic feet, and in 1865, 730,244,000, being an increase of 5½ per cent. The gas produced in the first half year from each ton of coals was 9081 cubic feet, and in the second, 9123 cubic feet, being an increase of one-half per cent. The rental of light in the half year of 1864 amounted to £132,412, and in 1865 to £138,899. The products amounted to £23,832 in the half year of 1864, and to £26,988 in 1865. The rental per ton of coals was 34s. 9¼d. in 1864, and 34s. 8¼d. in 1865. The net cost of coals per ton, deducting products, was 11s. 1¾d. in 1864, as against 11s. 2¼d. now. The retorts per ton of coals cost 6¼d. in 1864, as against 10¼d. this year. The general wear and tear per ton of coals was 2s. 1¾d. in 1864, as against 1s. 11d. now. The wages per ton of coals came to 4s. 1½d. last year as against 4s. 1½d. the present year. The rental realized per 1000 cubic feet, 3s. 10d. last year, as against 3s. 9½d. this year, and the coke for sale was 54¾ per cent. of the coals used in 1864, as against 53¾ per cent. of those used in 1865. So that I think, taking it altogether, the statements are very satisfactory. The cost of coals, unfortunately, is greater, and I am afraid that will increase. I believe we got our freight much less than any other company: we have made most favourable contracts with the shipowners, and they will last for for some time—two or three years. I hope at all events we shall do as well as any company in that respect, and better than most. Having given you these statements, the only other point upon which I have to remark, is our intended application to Parliament. You have notice of it in the report, and the reason we find it necessary to apply to Parliament for new capital is, that we find we shall have to lay out such a very large sum upon our eastern stations in gasholders and retorts, and so on, that it is far better, if we possibly can, to buy land in the neighbourhood of London, and get a large place where we can build new works entirely, as far as the eastern stations go. Our calculation is that we should want £120,000, or £150,000 even, for a few years, to make the existing works sufficient for the accommodation required, and we consider that we could make new works for £200,000 complete. So that you will see it is better to have new works, at a comparatively small expense, than laying out an immense sum in making imperfect works; and when I tell you that since Midsummer, 1852, up to the present time, we have laid out no less a sum than £249,000 in additional and necessary works for carrying on our business, you will see at once that it is a great misfortune that we did not apply for this ten years ago instead of at the present time; but you go on from time to time laying out £10,000 here and £20,000 there, until at last you see how much better it would have been to have made the larger extension at first. There is no doubt that if we had laid out this money ten or twelve years ago, we should have benefited most largely by it. I think there is no objection likely to be raised to our recommendation. There is only one other subject for me to advert to, and that does not refer to ourselves but to the London Company. Unfortunately you have all seen an account of their accident. We have done all we could to assist them. Some of the other companies are in a better position to do so, being more in their district, but all of us have done as much as we can. We all regret this accident, and cannot help it. It is a great misfortune. The neglect of some workman or some other trifling cause brings about these enormous losses. We are open to it any day ourselves, and we can only congratulate ourselves that at present we have had no such misfortune.

A SHAREHOLDER: Will those increased works require any additional capital beyond the remaining calls?

The CHAIRMAN: Yes; we expect so. I stated it would be about £200,000. We have £120,000 that we can call up. I forgot to say that you will find that we pay the dividend which we propose to-day upon an increased capital of £60,000 as compared with last year. We now pay 10 per cent. upon £780,000, but this time last year it was only £720,000.

Another SHAREHOLDER: May I ask whether the new premises you purpose taking are water-side premises?

The CHAIRMAN: Yes; close to a railway, the river, and a canal. We should not have taken it unless it offered great facilities for getting coals, and that is where we consider we should make the greatest saving.

A SHAREHOLDER: Can you favour us with any information as to what is going on with regard to any opposition on the part of the City?

The CHAIRMAN: They have intimated their intention of going to Parliament for powers to supply the City.

The SHAREHOLDER: Do you then think it wise in us to lay out this money?

The CHAIRMAN said he thought it would be the greatest means of stopping them. He did not consider for a moment that they had the slightest chance of getting what they sought. In reply to Mr. Box, he said the new works would be contiguous to the East of London, and the quantity of land taken was, in superficial measurement, 24 acres. He did not know that there was any reason why the directors should disclose the price paid. They considered that they had it on very favourable terms. They had made a provisional agreement respecting it, subject to the application to Parliament being successful. The whole quantity would not cost them half as much as a small portion immediately adjoining their present works, if they could get it.

Mr. BOX: Will it supersede Curtain Road station and Brick Lane station?

The CHAIRMAN: Yes.

Mr. BOX: Then I think the direction have had their eyes opened at last.

The CHAIRMAN: I am quite willing to take it in that way. "Better late than never."

Mr. GRAY: I cannot but think that that is a very unmerited censure upon the directors, because their eyes have always been open; and if they have not moved with quite that rapidity which my friend wished, I think they have exercised a very sound discretion in not being guided by his advice.

Mr. BOX: Then you may account for a good deal of lapsing by the fact that they have been asleep half the time.

Mr. GRAY: I think the chairman has said enough to satisfy the shareholders that the board have the best desire to benefit the company. It is much to be regretted that the accident took place a few days ago. A jury is now sitting, who will go amply into the inquiry. Without presuming to express any opinion, I am perfectly satisfied that in this case, as in others, it will turn out to have arisen from culpable negligence. That was the cause, I believe, of the explosion and the loss of property, and of what was still worse, the lamentable loss of life. I need not remind the court of proprietors that the Great Central had to compensate for a loss that occurred in Wood Street, which arose from the same cause—neglect. It is the duty of all gas companies to take every precaution to prevent such occurrences. There is a great deal of alarm now prevalent; but I think, when you hear the evidence that will be brought before the jury, you will be perfectly satisfied that with common precaution you may sit upon the top of a gasholder without having your life at all imperiled.

Mr. BOX: I should not like to be there.

Mr. GRAY: And I do not think any insurance company would charge a shilling extra for the risk. The chairman has said quite enough in the account which he has given to convince the shareholders that no effort on the part of the directors has been wanting to perpetuate our prosperity; but, at the same time, we are all exposed to oppositions. The opposition got up in the City I do not think will avail much against us, but there is no doubt they will prosecute it to the greatest extent; and they are disposed to do so because, whatever the result may be to those who are promoting this agitation, they will sustain no loss themselves. I agree with my worthy friend, that there is very little chance of their succeeding in Parliament. It would be just as reasonable for this great corporation to suggest to the consumers of beer and other things that they pay a large profit to the brewers, and therefore they had better have some breweries of their own, and supply the citizens with porter. The one proposition is just as reasonable as the other. And you do not know where this centralizing system will be carried. If corporate bodies are to interfere with private individuals, nobody can tell where it will end. If it succeeds in London, it will extend to all the provinces. I do not think they will get the money. I would not lend it to them at 4½ per cent., with the security they will have to offer. I propose this resolution—"That this meeting do agree with and confirm the report of the court of directors, and the auditor's report and statements of account of the company."

Mr. BOX: I would beg leave to ask, supposing a catastrophe were to happen to this company, what fund have we? Have we any fund upon which we could fall back?

The CHAIRMAN: You will see from the statement of accounts that there is a contingent-fund.

Mr. BOX: I am quite aware that when the contingent-fund was first instituted it was for that purpose; but about twelve months back, or somewhere thereabouts, it was said that it was to be made available for making good a default in the dividend.

The CHAIRMAN: There is no resolution of that sort. You will find a dozen opinions in this room now as to what would be done with the contingent-fund; but when the occasion arises we shall see what we can do.

Mr. BOX: It was carried that it should be applicable for making good the dividend.

The CHAIRMAN: No.

Mr. BOX: I remember I opposed it.

The CHAIRMAN: Don't you see it is such a nice fund that everybody likes to put his finger into it instead of into his own pocket. Every man, therefore, has a crotchet of his own as to what would be done in certain emergencies; but I imagine it would be strictly applicable to a contingency of the sort to which you refer. It strikes me that that is the case, but it is useless to lay down any rule that it should only be applicable to a certain event. My idea is that we should make use of it as occasion arises.

A SHAREHOLDER: Was not there something occurred with regard to this company in a fire at Saville House?

The CHAIRMAN: Yes; law proceedings have been taken, and we are very sanguine of success, because nobody could have been more careful than our workmen. We are as certain as we can be, notwithstanding the feeling of juries against companies, that they cannot get a verdict against us. No care could be greater than that which was taken.

Mr. SCOTT: I do not wish to disturb the meeting, but I should like to ask whether the directors have their eyes open to the possible consequences of an application to Parliament for new capital. I know that when railway companies apply for additional powers, fresh terms are continually put upon them, and new obligations sought to be enforced. I cannot imagine anything more dangerous than such a course when there is likely to be opposition.

The CHAIRMAN: They might bind us in price, but if they seek to put any other conditions upon us which we do not consider it advisable to accept, we should be at liberty to abandon our application.

Mr. SCOTT: Is any part of the property of this company insured, or capable of being so?

The CHAIRMAN: No; we should not think of doing so; I do not think there is any danger.

A SHAREHOLDER: Could not we have a contingent-fund purposely for that?

Mr. GRAY: If my worthy friend would forego dividends for three or four years, we should have a capital contingent-fund.

The resolution for the adoption of the report and the accounts having been seconded, was then put to the meeting, and carried unanimously.

Mr. PERRY moved—"That a dividend at the rate of £10 per cent. per annum for the half year ending Midsummer last, and a back dividend at the rate of £1 per cent. per annum for the half year ending Midsummer, 1859, be now declared payable on the 6th of Nov. next, in accordance with the recommendetion of the directors."

Mr. SCOTT seconded the motion, and expressed his satisfaction at the promptitude of the board in paying the dividend.

The CHAIRMAN brought up the following resolution of the court of directors:—"That a call of £5 per share be now declared payable on or before Tuesday, the 26th of December next." In asking for the approval of the proprietors, he stated that this call was necessary in consequence of the increased gasholder room which was required.

Mr. STEWART said he should have very great pleasure, as far as he was concerned, in paying this call, for a better conducted company he must say he did not know of. The directors of the board exerted themselves to the utmost to make this a prosperous concern, and everything was really done, in his opinion, that could be done on the part of the board. The number of meetings they had got to attend was a large occupation of their time, and the anxiety of carrying on great works like this was disproportionate to the money paid them as remuneration. As regarded the call, he had no doubt it would be paid by the shareholders, and paid with great pleasure; but he was going to make one remark which he was sorry to make, and that was that he found the gas analyst in the City seemed generally to report against this company in regard to the quality of the gas supplied.

The CHAIRMAN: He says that we have an excess of ammonia; but it is most absurd, because if we had double and treble the quantity it would not matter. He does not report any excess as to illuminating power. If you look at the returns, you will find that they never say a word about excess in this respect; they pass that over; but out of the twelve months reports he makes, perhaps you will find two where he says that the illuminating power is less than the Act requires. You know they brought us up before the magistrate for giving that. We had witnesses to prove that so far from being under, it was over on every occasion; and when they heard that, the charge was withdrawn.

Mr. STEWART: I was going to make this remark, too—that I should

think, after the late accident, the citizens ought to have their eyes opened to the risk they will run if they have gas-works of their own; and I should think they will weigh it well in their minds before they start this new project. There is another thing. It is true that if all the proprietors of this company held shares originally, 10 per cent. would be an enormous dividend—at all events, the public would call it so; but many of us, it will be remembered, came in at large premiums, and the dividend on an average is not over 5 or 6 or 7 per cent.; and of course, if you go before Parliament, you will engage some first-rate talent there on purpose to open the eyes of the public a little, and show them the real state of things—that though there are large dividends, they are in this way reduced.

A SHAREHOLDER: Will you allow me to ask, Mr. Chairman, what proportion of the fourth call still remains to be paid up.

The CHAIRMAN: About £120,000.

A SHAREHOLDER: I think the motion on the paper is that the money should be paid on or before the 26th of December. If it could be put off to the beginning of January, would it not be more advantageous to many persons?

The CHAIRMAN: You receive your dividends from the 25th of December, and therefore it is but right that the money should be paid at that time. It is impossible to make it convenient for everybody, and we must make it according to our own plans.

The SHAREHOLDER: It will make no difference to me, but many persons will be receiving large sums of money, perhaps, after Christmas.

The CHAIRMAN: We have had a number of anonymous letters proposing this time and that time. There would be no end of the matter if we were to listen to such suggestions. The proper time, no doubt, is when you receive your dividend. We do not make a call till we absolutely want the money. We shall want this money to pay for the gasholder, which will come to £28,000. We want the money; and we make it a penalty, in case of default, that the proprietors shall not receive interest upon it.

A SHAREHOLDER: Do you not consider that you give a large bonus to the holders of these shares by calling up new capital.

The CHAIRMAN: I have no doubt they will find it so.

The motion was then seconded, and unanimously carried.

Mr. J. Sale Barker, Mr. A. W. Chisholm, and Mr. Henry Yool, were re-elected as auditors.

Mr. WOOLLASTON said he wished to move a resolution; but before doing so, he would inquire whether there had not been an increasing per centage on their salaries given to the officers employed by the company.

The CHAIRMAN said there had been a scale fixed by which the officers would receive an addition to their income every year up to a certain point.

Mr. WOOLLASTON said he thought when the company had increased the salaries of all the minor officers they ought not to lose sight of the directors. He was rather repeating the words of his brother, who was very sorry he was not able to be present. His brother had been auditor of the company for many years, and considering now the very flourishing state of the concern—so very far superior to what some of them could recollect a few years back—he was decidedly of opinion that the board ought to receive something more than mere votes of thanks for their good conduct, and for the energy and talent with which they had carried on the business. He then proceeded to read a letter written to himself by his brother upon the subject, setting forth at considerable length the services which the directors had rendered to the company, and concluding by proposing that a sum of 1500 guineas be presented to them in consequence.

Mr. GRAY said he quite concurred in what had been said by the last speaker, but he thought in all cases of this sort some previous intimation should be given to the proprietors at large.

Mr. WOOLLASTON said he would act upon this suggestion, and, dropping the motion for the present, would now give notice of his intention to move it at the next half-yearly meeting.

Mr. GRAY said he thought this course would be more agreeable to the directors themselves. He was quite prepared to vote now, but it would hardly be judicious.

The CHAIRMAN said the proposal of the worthy proprietor was made entirely without the knowledge of the board.

Mr. BOX expressed some curiosity for information regarding the present remuneration of the directors.

The CHAIRMAN said it was 200 guineas a year, and 300 to the chairman. These sums were voted by the proprietors under a bye-law.

A SHAREHOLDER remarked that it must be remembered that the directors had large stakes in the concern, and were looking after their own interests as well as the interests of the general body of shareholders.

The CHAIRMAN said it was a question entirely for the proprietors. It seemed almost improper for a director to make any remark upon it; but still he would remind the proprietors that the directors had a very large number of meetings to attend, and they were only paid for a certain number, no matter how many more they were at. He himself attended regularly five meetings every week, and sometimes seven, eight or nine, as important business arose, and he did not hesitate to say that he felt he was not bound to attend any meeting as chairman. The payment for attendances was limited to four a week.

Mr. BOX said he would tell the meeting how it happened that the chairman did not consider himself bound to attend these meetings. When Sir David Pollock was elected chairman, he was expected, as barrister, to give his advice gratuitously, and he received a salary as chairman of 300 guineas a year, so that he was not bound to attend any one particular meeting; and the present chairman had stepped into his shoes.

The CHAIRMAN: I step into his shoes in that way, but I do not step into them in not attending the meetings. That made all the difference.

A SHAREHOLDER said it reflected the greatest credit upon the chairman that he did that which he was not bound to do.

Mr. GRAY then proposed a vote of thanks to the chairman and directors for their able and successful services.

Mr. BOX seconded the resolution, which was immediately adopted.

The CHAIRMAN briefly acknowledged the compliment, and said that no effort would he wanting on the part of his colleagues and himself to promote the interests of the company.

The proceedings then terminated.

EQUITABLE GASLIGHT COMPANY.

The Half-Yearly General Meeting of Proprietors was held at the Company's Office, John Street, Adelphi, on Tuesday, Nov. 7—JOHN HOLDSHIP Esq., in the chair.

The SECRETARY (Mr. Andrews) read the advertisement convening the meeting, and, the minutes of the last meeting having been confirmed, the following report and statement of accounts were presented:—

The directors have the pleasure of submitting to the shareholders a satisfactory statement of accounts for the half year ended the 30th of June last.

During that period there was a large increase in the consumption of gas, and the directors have the gratification to report a corresponding improvement in the gas-rental, which was upwards of £3000 in excess of the same period of the previous year.

At the last meeting, the shareholders were informed that the directors, in anticipation of a considerable increase in the demand for gas, had entered into arrangements for an extension of the manufacturing plant and apparatus connected therewith. They are now enabled to state that some of these works are completed and in action, and that the others are progressing satisfactorily; and it is expected that the whole will be finished by the time they will be required. These alterations and extensions will form important improvements in the manufacturing plant.

The proprietors were likewise made acquainted with the intention to reduce the price of the company's gas 6d. per 1000 feet, from the 1st of July last. This reduction has been made, and it is hoped that the increase in the consumption will in time neutralize its effect on the profits of the concern.

The profit and loss account and balance-sheet for the last half year are annexed. The former shows a net profit of £23,396. 2s. 1d., from which the directors recommend a dividend of £2. 10s. per share on the old shares; of £1. 1s. per share on the new shares; and a further dividend of £1. 17s. 6d. on the old shares, being the balance of arrears of former dividends, as limited by the Metropolis Gas Act of 1860. The several dividends will be paid, less the income-tax.

The directors desire to remind the shareholders that, as the arrears of dividend will be paid off on this occasion, the old and new shares will participate alike in all future divisions of profits, and the dividends will not exceed 10 per cent., that being the limit in the several Acts governing the operations of the company.

Dr. *Manufactory and Revenue Account, for the Half Year ended June 30, 1865.* *Cr.*

To Tradesmen's accounts, purification, &c.	£	359	0	9	By Gas-rates, to June 30, 1865	£40,687	10	2
Coals, carbonized	15,254	14	1		Meter-rental	767	5	5
Wages (manufacture only)	3,912	3	8		Coke, net sales and stock	6,282	0	2
Rent, rates, and taxes	819	17	5		Breeze, ditto	386	6	6
Directors fees	650	0	0		Tar, ditto	1,354	7	0
Auditors ditto	45	0	0		Ammoniacal liquor	334	7	0
Salaries	1,565	19	8		Balance of interest account	122	5	3
Collectors commission	651	2	11					
Stationery and stamps	102	17	9					
General charges	204	6	8					
Bad debts and allowances	118	0	11					
Wear and tear	2,733	17	10					
General law charges	107	8	6					
Income and property tax	13	9	3					
Net profit, to June 30, 1865	23,396	2	1					
	£49,934	1	6			£49,934	1	6

Dr. *Balance-Sheet.* *Cr.*

To Capital, joint stock—				By Investment, to Dec. 31, 1864	£260,677	13	10
Old shares, £50	£200,000	0	0	Less mains, &c., taken up	122	7	0
New ditto, £25	84,000	0	0		£260,555	6	10
Dividends	458	10	1	Charged this half year	2,106	12	7
Tradesmen's accounts, &c.	3,354	10	5			£262,661	19	5
Taxes, rates, &c.	439	13	9	Meters	6,632	9	5
Collector's commission	324	13	7	London and Westminster Bank	11,017	2	4
Auditors	45	0	0	Cash balance	3,552	19	2
Profit and loss	23,420	11	5	Gas-rates	13,880	11	7
				Tradesmen's accounts for coke, &c.	2,865	1	4
				Coals—stock	487	15	0
				Coke—ditto	20	8	0
				Breeze—ditto	16	0	0
				Tar—ditto	67	14	2
				Ammoniacal liquor—ditto	31	3	3
				Service-pipes—ditto	265	19	2
				Main-pipes, &c.—ditto	727	5	9
				General stores—ditto	2,358	2	6
				Leasehold property	7,374	12	7
				Income and property tax	83	15	7
	£312,042	19	3		£312,042	19	3

Unappropriated profits to Dec. 31, 1864	£	24	9 4
Net profit to June 30, 1865	23,396	2	1
Amount available for dividend	£23,420	11	5

The CHAIRMAN said it was now his duty to propose the resolution which was usually the first submitted to the proprietors on occasions like the present—viz., "That the report of the board of directors, together with the accounts as examined and certified by the auditors, be received and entered on the minutes." In moving this resolution, it was not necessary that he should detain the proprietors with any lengthened observations. He thought every gentleman in the meeting would agree with him in regarding the report and accounts as most satisfactory. He was happy to state that the works were in excellent condition. The board were exerting themselves to promote the utmost economy, and to introduce all improvements in their manufacturing operations which were practicable, and it was gratifying to know that their efforts had produced the best results, as well to the public at large as to the shareholders of the company. The directors believed that whatever they did in the way of perfecting their arrangements was an advantage to the consumers, while it benefited their own constituents. They had also been able, as the shareholders were aware, to make a reduction in the price of gas. This was a voluntary act on their part: there was no pressure put upon them to do it. They might have deferred it until the reserve-fund, to which, by Act of Parliament, they were entitled, had been created, but they were desirous of showing the anxiety they felt at all times to afford satisfaction to the public, and therefore they reduced the price of gas before one shilling of reserve had been laid by. It would now be their duty, as opportunity served, to endeavour to raise that fund; and when that was done, it would give the directors increased pleasure to make a further reduction, although, of course, that could not be for some time to come. The gas supplied by the company had been above the parliamentary standard, and had met the approbation of the constituted authority, as also of the consumers in the district, both with regard to its quality and illuminating power. Upon the question of leakage the proprietors would be pleased to learn that it was very much reduced. Formerly it was said that the earth in which the gas-pipes were laid was saturated with gas, by reason of the constant escapes, and no doubt while active competition prevailed the leakage of gas-mains generally was much higher than at present; and there was also great difficulty in detecting from whence escapes proceeded. It was clearly to the interest of all the companies that the leakage should be reduced to the lowest practicable point. They would be glad if it could be brought down to *nil*, but that appeared to be impossible; still, under the existing district arrangements, they were able to give more particular attention to this point, and the result had been a most marked improvement. With reference to the capital of the company, he reminded the proprietors that the directors had now made the last call upon them, and that if any further capital should hereafter be required, it would be necessary to go to Parliament for fresh powers. There was one matter to which he felt it right to allude, and in doing so to ask for the hearty sympathy of the meeting, and that was the sad catastrophe which had occurred at the London Gas-Works. It would not be right for him to express a very decided opinion as to the cause of that catastrophe, as the whole matter was now undergoing a thorough investigation; although, having been over the works, he had formed an opinion on the subject. There was one point fully established in connexion with this unfortunate affair, and that was the benefit which the public derived from the districting system carried out by the metropolitan gas companies under the sanction of Parliament. No sooner was it known that the explosion had taken place than the whole of the neighbouring companies came forward most promptly and willingly to assist the London Company, so that the consumers in the whole of their district were fully supplied with gas on the very next day, as if no accident at all had occurred. With these remarks he moved the adoption of the report.

Mr. RHODES seconded the motion.

Mr. HADLAND asked whether the Equitable Company had been able to render assistance to the London Company.

The CHAIRMAN said they had done so to the utmost their means would allow. He heard of the accident very soon after its occurrence, and he immediately communicated with the secretary, and gave the authority of the directors to render all the help which they could give. The other companies surrounding their district had done the same.

Mr. HADLAND inquired whether it was likely that this help would be required for any length of time.

The CHAIRMAN said he believed not, for, as he understood, the London Company would very quickly have one of their gasholders in operation. There could be no doubt that much misapprehension existed with regard to the accident, and the result of the official inquiry would tend to clear up many points upon which mistakes had been made. It was a most sad affair, not only because of the destruction of so much property, but because of its disastrous effects in reference to human life.

Mr. HADLAND remarked that the accident had occurred at a most unfortunate time, because just now the powers of the companies were taxed to the utmost extent to meet the claims of their own districts.

The CHAIRMAN said it was due to the Imperial Company to say that they had rendered most valuable assistance. The means at their disposal being ample, they had been able to furnish a very large supply of gas for the use of the London Company.

Mr. RHODES said he thought it desirable that the shareholders should have some further information, and he should like to know from the chairman whether, in his opinion, other companies were not liable to a similar contingency.

The CHAIRMAN said he thought not. Having visited the works with Mr. Martelli, he considered it was perfectly clear that the opinions expressed by scientific men as to the non-explosiveness of a large gasholder filled with gas was a correct one. It was evident that the explosion did not take place in the gasholder—there was combustion, but no explosion. The accident occurred in the meter-house, which was blown to atoms. By this means both of the gasholders were wounded, and a large escape of gas of course ensued, which became ignited, and burned just as if it issued from a burner, but both of them went down without any explosion. He believed, as he had said, the scientific fact would be proved that a large quantity of gas stored in a gasholder was not explosive, and could only be consumed by combustion upon the admixture of a certain per centage of atmospheric air before the light was applied to it.

Mr. MICHAEL said he thought it would not be of any service to enter upon a discussion of the subject on this occasion. There was one point which the occurrence of this sad catastrophe had made very clear, and that was that the gas companies had unhappily succeeded in gaining the enmity of all portions of the community, and that the public were prepared, as was manifested by the *Times* leader on the previous day, to put the worst possible construction upon all their proceedings. The non-explosibility of a gasholder filled with gas was demonstrated in this case, but, unfortunately, when persons were disposed to find fault, they would take hold of either end of the stick, and turn its point against their opponent. Those who were familiar with gas operations had laid down the principle that gas influenced from without could do no injury in the gasholders, and that it was absurd to talk of the danger arising from workmen smoking or even large fires occurring in the neighbourhood. It was perfectly apparent to his mind that this was an accident arising from causes *ab intra* and not *ab extra;* nothing external to it could create danger from gas in a gasholder, not the greatest fire in the world. But if, as in this case, a large body of flame was poured into the bottom of a gasholder, and the gas therein became ignited, the mere expansibility of the lighted gas would account for all that occurred. Something must give way when such expansion took place. A portion of the roof of the gasholder was driven off in this instance, but there was no explosion in the proper sense of the term. He had no hesitation in saying there was not the slightest foundation for the apprehensions expressed in the public prints, as to the danger of storing gas in populous neighbourhoods.

The CHAIRMAN said the crown of the gasholder existed almost intact after the accident, only a comparatively small portion of it was destroyed, which was a proof that no explosion took place within it, or the whole of the top would have been blown to pieces.

Mr. RHODES expressed his satisfaction on hearing the statements made by the chairman and Mr. Michael. Referring to the affairs of the company, he said he had recently visited the works, and while he was delighted with the admirable condition in which they were kept, he could not help fearing that their excellent engineer, in his zeal to secure every improvement, might be tempted to urge upon the directors the expenditure of money which, remembering the last call had now been made upon the proprietors, they could hardly afford to indulge in. In looking at the accounts, he observed what appeared to him to be an addition to the item of "Bad debts," viz., the term "allowances."

The CHAIRMAN said it was a term always employed in the accounts, and was nothing new. The proprietors would no doubt be gratified to hear that the sum charged under the head of "Bad debts and allowances," was still very low, though perhaps a trifle higher than it had been. It was only about 6s. per cent. on the rental. In reply to further inquiries he said the sum charged for wear and tear was less last half year than for the corresponding period of 1864. The amount was £2733 for 1865 as against £2958 in 1864. The law charges were rather high, the reason being that the directors had been settling the account for parliamentary expenses in connexion with the opposition to the Subways Bill. With the exception of that the law charges amounted to but a very few pounds.

Mr. LIDDLE said the directors expressed a hope in the report that the effect which the reduction in the price of gas might have upon the profits of company would be neutralized by an increase in the consumption. He should like to hear from the chairman whether that anticipation had been borne out by subsequent experience.

The CHAIRMAN said there had as yet scarcely been sufficient time to determine the fact.

Mr. LIDDLE said he fully sympathized in the remark made by the chairman respecting the unfortunate accident at the London Company's works, and he thought it would be very becoming if all the other companies contributed something out of their funds to relieve the friends of the sufferers. For himself he should be most happy to join in a vote authorizing the directors if need be to subscribe such a sum as in their judgment might appear right. Perhaps, however, it would be better left to the discretion of the board with a simple intimation of the feeling of the shareholders.

The CHAIRMAN had no doubt that Mr. Liddle had expressed the feeling of the proprietors generally. He would only say that the board had had this question before them, and would be very happy to do all in their power.

Mr. HADLAND said he thought it would be much better to leave the matter in the hands of the directors, to deal with as they thought proper.

The motion was then put, and carried unanimously.

The CHAIRMAN moved—"That a dividend be now declared out of the profits of the concern, for the half year ended the 30th of June last, of £2. 10s. per share on the old shares, and £1. 1s. per share on the new shares; and a further dividend of £1. 17s. 1d. per share on the old shares, being the balance of the arrears of former dividends. That the said dividends be payable, less the income-tax, after the termination of this meeting and on the 8th, 9th, and 10th inst., and afterwards on every Tuesday and Friday between the hours of ten and four o'clock."

Mr. RHODES seconded the motion, which was at once adopted.

Mr. MICHAEL said he had to propose a resolution which needed no recommendation from him to ensure its hearty reception. In looking over the accounts of this company and comparing them with those of any other company, whether in the metropolis, in England, or in Europe, the proprietors could not but be impressed with the fact that their affairs were most ably and judiciously managed, and that there was not a board of directors who more honestly deserved the thanks and continued confidence of their constituents than the gentlemen who conducted their business. He proposed therefore—"That the best thanks of the meeting be presented to the chairman and directors for their efficient management of the company during the past half year."

Mr. AGER seconded the motion, which was very cordially adopted.

The CHAIRMAN said, on the part of his brother directors and on his own behalf, he had to thank Mr. Michael and the rest of the proprietors for this renewed expression of their confidence and approval. The directors did give their best attention to the duties of their office, and in past times they had had much hard work to get through. They were rewarded in seeing the growing prosperity of the company, and would still devote themselves to secure the interests of the shareholders.

A PROPRIETOR asked the chairman what effect he thought the agitation in the metropolis would have upon gas property generally.

The CHAIRMAN said he believed it would have more effect upon the nerves of people than anything else.

A vote of thanks to the auditors was then adopted, and the proceedings terminated.

EXPLOSION AT THE LONDON GAS COMPANY'S WORKS, NINE ELMS.

On Tuesday afternoon. Oct. 31, an accident of a most alarming character, arising from an escape of gas, occurred at these works, involving in its results the destruction of a large amount of property, the loss of ten lives, and serious injury to many persons. The circumstances attending the same are so clearly disclosed in the annexed report, that it is unnecessary here to refer to them.

CORONER'S INQUEST.

The inquest on the bodies of the unfortunate men who came by their deaths through the explosion, was opened on Friday, the 3rd inst., before W. CARTER, Esq., the coroner for East Surrey, and a jury, in the board-room of the London Gas Company, at Nine Elms.

The names of the deceased are Frank Woodham, William Carter, John O'Dwyre, George Fielder, Frederic Dove Thomsett, Thos. O'Donnell, Edward Burke, Patrick Shea, William Smith, and John Cox. The bodies of

the first seven, who were killed on the spot, were lying on the works, the remaining three were in the dead-house of St. Thomas's Hospital.

Mr. BESLEY, barrister, attended to represent the company; Mr. BICKLEY appeared for the representatives of Thomsett; and Mr. MAYO for the relatives of O'Donnell.

The CORONER, on taking his seat, said the duty which the jury were called upon to perform was of so serious a character that he thought it would not be possible at the first sitting of the court to dispose of it satisfactorily. He proposed therefore that on this occasion they should confine their attention to the identification of the bodies of the unfortunate deceased, and to any evidence which might be produced showed the construction of the building in which the explosion took place. This sad affair had created a great deal of anxiety in the public mind, and a serious responsibility rested upon the jury to inquire most minutely into the causes which had led to it. His only motive for opening the inquest at so early a period was that the friends of the deceased might be able to receive the bodies of their unfortunate relatives, and make the necessary arrangements for their interment. The jury, if they fell in with his views, would therefore understand that he did not propose to enter upon any inquiry to-day as to the cause of the accident, but to restrict the evidence to the identification of the bodies, and to such an explanation of the construction of the premises as might help them hereafter to come to a right conclusion upon the matter.

Mr. BESLEY said he appeared before the court, instructed by the directors of the London Gas Company, and he was quite sure the coroner and jury had already anticipated what he had to say—viz., that his clients were extremely anxious to facilitate the inquiry in every possible way. He might state, for it was important that the jury should know the fact, the company had already given directions to have a model of the buildings destroyed to be prepared, which would, at the next sitting, be placed upon the table, so that the witnesses would be able fully to explain their evidence. The model would be ready in the course of five or six days.

The CORONER asked Mr. Besley whether, such being the case, he thought the course which he had suggested of viewing the premises would be necessary.

Mr. BESLEY said he thought if the inquiry to-day were limited to the mere identification of the deceased it would be better. The main object of the inquest would be very much facilitated if the jury had before them a model of the premises while the witnesses were giving their evidence.

Mr. BICKLEY said he represented the relatives of the deceased man Thomsett, and he quite acquiesced in what had been suggested, believing it would be much better to have before them a model of the premises at the time the evidence as to the cause of the explosion was given.

The CORONER said, if the jury concurred, he saw no objection to the course proposed by Mr. Besley, for he believed they would better understand the construction of the buildings by means of a model than by any verbal description from witnesses.

The jury having agreed, it was decided to restrict the evidence this day to the identification of the deceased.

Mr. BESLEY said he was desirous to meet the convenience of the coroner and jury as much as possible, and he would propose that, after taking this evidence, the court should be adjourned until Thursday, the 9th inst.

The CORONER said they would not decide that point at present.

The jury having been sworn, proceeded to view the bodies which were lying on the works. Upon their return,

The CORONER said he had only one further observation to make, but it was one to which he hoped the jury would pay attention. He had observed in looking over the list of jurymen that a great number of them belonged to the neighbourhood. This in itself was not a matter of much importance, beyond this—that he hoped they would not allow any matter of feeling to overcome their discretion in any way with regard to what had occurred. Their duty was to hear the evidence, and to judge upon that evidence only as to whether or not a charge of negligence or criminality attached to any party in connexion with the cause of these unfortunate deaths. They were bound not to spare any one, nor to show favour to any one, and to take care that they did not allow themselves to be biassed by anything they might have heard out of doors in relation to this matter.

William Woodham was then called. He said: I am a stonemason. I live at 4, Briton Street, North Chelsea. I have seen the body of a dead person lying in the coffin numbered "1." It is the body of my brother. His name was Frank. He was a plasterer. He was 19 years of age last birthday.

William Carter: I am a timekeeper at a wharf at Battersea. I live at 35, Union Road, York Road, Wandsworth. The body lying in coffin numbered "2" is that of my son. His name was William Thomas. He was 24 years old last birthday, and a carpenter by trade.

Martin O'Dwyre: I am an engine setter, and live at No. 6, Cross Buildings, Queen Street, Chelsea. The body in the coffin numbered "3" is that of my son. His name was John. He would have been 17 years old next April.

William Fielder: I am a carpenter and joiner. I live at 3, Bulmer Place, Doris Street, Lambeth. The body in the coffin numbered "4" is that of my brother John. He was 31 last June, and was a carpenter and joiner by trade.

Edward Thomsett: I am a master builder. I live at Waterloo Cottage, Sussex Road, Brixton. The body in coffin numbered "5" is that of my brother. His name was Frederick Dove Thomsett. He was 39 years of age, and by trade a sub-contractor of brick-work. He has left a wife and one child.

Terence M'Henry: I am a plasterer. I live at 10, Prince's Terrace, Haverstock Hill, Hampstead. The body in coffin numbered "6" is that of my cousin, Thomas O'Donnell. He was about 29 years of age, and was a plasterer. He has left a widow and two children.

John Burke: I am a labourer, living at 4, Union Place, John Street, Chelsea. The body in coffin numbered "7" is that of my son. His name was Edward, and he was 23 years of age. He was a single man, and by trade a plasterer.

The CORONER said, having now identified all the bodies lying at the works, he would take evidence as to the identity of those who had died since the explosion, after which he would accompany the jury to St. Thomas's Hospital to view the bodies.

Edward Smith: I am a labourer, living at 4, Gloucester Street, Vauxhall. I have seen the body of a person lying at St. Thomas's Hospital. It is that of William Smith. He was my father. He was an assistant-foreman of the stokers. He has left a widow and two children besides myself. I am 17 years of age; the other two are 6 and 10 years old.

Amelia Margaret Shea: I live at No. 2, Hayward Street, Nine Elms. I saw the body of Patrick Shea at St. Thomas's Hospital yesterday. He was my husband. He was about 55 or 60 years of age. He was a labourer. I have only one child, a girl, who is 11 years old.

Margaret Cox: I live at No. 2, Neville Street, Vauxhall. I saw the body of my husband lying at St. Thomas's Hospital. His name was John Robert. He was 54 years of age, and had been in the service of the company as a gas-refiner. I have one child who is 10 years old.

Mr. BESLEY said the husband of the last witness was in the service of the company for thirty years.

Some conversation then took place on the question of adjournment, and it was ultimately arranged that the next sitting of the Court should be on Thursday, the 9th, Mr. BESLEY stating that the plans and model would be ready by that day.

The coroner and jury proceeded in cabs to St. Thomas's Hospital, and, having viewed the three bodies lying there, the court was formally adjourned.

THURSDAY, NOV. 9.

The inquest was resumed this morning at half-past ten o'clock.

Maps of the gas company's premises and models of the meter-house and the governors, &c., had been prepared, and were now produced for the purpose of facilitating the objects of the inquiry.

Richard Harvey called, and examined by the CORONER.

I am foreman stoker in the carbonizing department. I reside at No. 1, Millpond Terrace, Battersea. I have been for the last 30 years in the employ of the gas company. My duties were in the retort-house. I was there on the 31st of last month, when the explosion occurred, from about 15 to 20 minutes past two o'clock in the afternoon. I was at the moment in No. 4 retort-house.

The CORONER: Is that where the explosion took place?

Witness: No, sir; the explosion took place in the meter-house. I do not know who or how many persons were in the meter-house at the time of the explosion. When I was in the retort-house a man named Smith came and told me there was something amiss in the meter-house, as the gas was escaping. I immediately ran to the meter-house, and pushing my way past several men standing at the doorway, I saw Thomsett on my left hand, standing by the side of the meter. I also noticed five or six other men holding down the governor on the side nearest the wall. I did not know any of those men, but I believe they were plasterers and labourers. I know this from the fact that they had previously been at work plastering the walls and ceilings of the meter-house. They had been working under O'Donnell. I know that Thomsett and O'Donnell lost their lives. I did not see any of the men taken out of the ruins after the explosion. I have no doubt but that they were in the meter-house at the time of the explosion. I had only time to get to the platform where the governor was when the explosion took place. The gas was escaping from the governor, from which the water was also blowing out, at the side where the men were holding it down. The escape appeared to me to be very large. I am quite sure the gas was escaping from the governor. I had no time to observe anything else before the explosion occurred. [Witness explained, by means of the model, the position in which the holder was being tilted by reason of the men pressing on the side.] There was a fire in the meter-house, in one of the further rooms, for the purpose of drying it. That was some distance from the governor. There was one gas-burner in a closed glass lamp facing the meter, which was called the test-light. I did not notice whether it was alight at the time. I had no time to do so. When I got to the platform on which the governor was, and saw what the men were doing, I called for some water. If I had had a few pails of water to put into the tank, as the holder, through being tilted, was unsealed, I might have prevented the further escape of gas. I had no time to inquire why they were holding it down. I do not know what caused them to do so. No complaint had previously been made to me of there having existed any escape of gas. The works commenced operation on the 1st of October, 1864, but the governors had been in operation about five or six weeks only. They always appeared to me to act very well. There had never previously been any escape from them to my knowledge.

By the FOREMAN: I believe the governor from which the escape was taking place at the time Smith called me into the meter-house was a new one, but this is not in my department.

By Mr. BESLEY: Smith had to run 200 yards to make me acquainted with the escape, and I had to run 200 yards to the meter-house, which I only reached just before the explosion. When I got there, the water of the governor was blowing off out of the tank upon the floor and sides of the room, and the gas was escaping, which escape increased while I was there. I noticed a flash of light in the further corner of the meter-house, nearest to the meter-shops. The flash instantly ignited the gas then escaping from the governor, and blew up the meter-house. I heard the noise of the explosion, which had the effect of throwing me down. I, however, retained my senses, but I heard no other explosion.

By the CORONER: I believe the flash came from the meter-shop. The gas was then escaping in sufficient quantity to be driven that distance. I do not know whether the window of the meter-house in that direction was open, but like enough it was a little way. I do not know the direction of the wind at the time. There were gaslights in the meter-shop, for the purpose of testing meters. The test-light, which is kept in a lantern in the meter-house, was closed. I do not believe that the gas caught fire from the act of any person inside the meter-house. I cannot say if any of the windows of the meter-makers shops were broken, but I have seen them opened frequently.

By the JURY: I believe that the gas first escaped from the governor, and that the plasterers, who knew nothing about the governor, attempted to stop the escape by pressing the governor down on one side, which necessarily caused a greater escape of gas.

By the CORONER: I do not know what gave rise to their holding the governor down, but I suppose the gas must have been escaping before they touched the governor. Had I had time to put in a few pails of water, which I instantly called for upon getting into the meter-house, it would have prevented the explosion. The water would, as we call it, have sealed the gas.

CORONER: What do you suppose caused the gas to escape?

Witness: I think it is possible that one of the plasterers trod on one side of the governor, which caused it to tilt, and the gas to escape, which they subsequently tried to stop by holding it down.

Examination continued: I had seen the plasterers at work that morning in the meter-house. They were engaged at the time in different parts—some on the stage where the governors were, and some in the rooms and the little office. They were plastering the walls, not the ceiling of the governor-house. I think in doing so it is probable the men trod on the gasholder and tilted it, and to rectify the matter, when they discovered the escape of gas, they were holding it down. The governor was surrounded with water; I do not know to what depth as I never measured it. I do not know when it was last charged with water, but I believe it did not require to be done more than once, unless the water had been displaced.

There is a person to attend to this department—the valve man; it is not a part of my duty to interfere. I do not know if all the persons in the meter-house lost their lives. I believe the men working in the meter-house were upon good terms with each other. I have no reason whatever to suppose that any one of them would have caused the gas to escape from any act of malice. I never heard any observation which would lead me to suppose they were not on good terms.

The CORONER: Then I suppose we are to understand that upon your theory one of these men might possibly have stepped upon that portion of the governor, causing it to tilt, and that that was an inadvertence?

Witness: In my opinion, it must have been so.

The CORONER: You think it was an inadvertence, the person probably not knowing the consequence of so doing.

Witness: I quite think so.

By Mr. MAYO: I cannot say if any one was smoking in the meter-house. I neither saw any one there with a pipe nor did I smell any tobacco smoke.

John Bassett, examined by the CORONER.

I am a porter in the service of Mr. Sellar, a grocer in Nine Elms Lane. I heard this explosion on the 31st ult., and went to the gas-works, which are near my master's house. I found that some of the buildings had been destroyed. I assisted to get some of the men out of the ruins. One that I extricated myself had his scalp torn off. He was taken away in a cab. I do not know personally who the men were. I saw other men got out from under the ruins of the building, who were quite dead. I did not know any of them. I have no knowledge of the cause of the explosion.

Thomas Oake Shutter, examined by the CORONER.

I reside at No. 9, St. George's Terrace, New Road, and am in the service of the company as coke-clerk. On the 30th ult., about ten minutes past two, I was coming to the works and was opposite the large gasometer now erecting at the other side, when the explosion took place, and immediately proceeded over the ruins to find where the other clerks were. I found that the meter-house had been blown down, and was given to understand that there were some men under the *débris*. I assisted to get four of them out, one of whom was living. I took him to Dr. Sutcliffe's. I knew two of the others, Thomsett and O'Donnell. They were lying under the ruins at the end nearest the retort-house. I know the man Smith; I did not see him at the time. I saw Woodham, the plasterer's boy. I saw Cox after he was got out. Shea was not taken out of the ruins; he was in the yard. I saw them bringing him from there.

Mr. *William Henry Kempster*, examined by the CORONER.

I am a registered surgeon, residing at Oak House, Battersea. On the 31st ult. I went to the gas company's premises. I found three dead bodies on my arrival—Woodham, Carter, and Fielder. I afterwards assisted to extricate three more bodies—Thomsett, O'Donnell, and Burke. I understood they were taken out of the meter-house. I saw them afterwards in their coffins. O'Donnell exhibited very little external injury; he had evidently died from suffocation. The body was very much compressed. It was an hour before he was extricated, there being a large quantity of material upon him. He must have died almost instantaneously. The body of Thomsett was lying across and over O'Donnell and Burke. He was under the ruins about the same time, and the cause of death was also the same.

Richard Harvey was recalled, and stated that on recovering consciousness after the explosion, he saw Smith lying in the yard upon his back. There did not appear to be any external injury, but he could not get his breath. He understood that his skull was fractured.

John Keyes Bartlett, examined by Mr. BESLEY.

I live on the works, and have been in the employ of the company as chief valve man about thirteen years. I had charge of all the valves, governors, and meters in the works at Nine Elms. It was my duty to attend to the valves at the heaviest period of the consumption of gas each day. We send the gas out through the governors to the distribution mains. I regulate the pressure by the governors. The gas comes to the governors from the gasholder. After twelve o'clock at night, when the consumption of gas is small, the pressure is differently adjusted to what it is at the heaviest period of the evening's consumption. It is gently brought down from eight o'clock in the evening until half-past twelve. [Witness explained, by the aid of the model, the working of the governor]. The governor is in a tank in which is water, and according to the rise and fall of the cone at the top, the pressure of gas is regulated. When the gasholder is up there should be eight inches of water in the tank, and that quantity was in on the day of the accident. It is not necessary to replenish the water, as the gas itself makes water. I went on duty about four o'clock the day previous to the accident. There were then two governors in the meter-house. Both were in use. One was rather smaller than the other. There was also a third, but it was not finished. The governor which is supposed to have been tilted over was the smaller one, and the one I worked during Monday evening. It had been at work at Nine Elms about two months, and previously to that at Vauxhall for about six years, during which period it worked perfectly. The meter was set for the night pressure about one o'clock on Tuesday morning. I left the works about half-past four o'clock, and then left a man named Michael Doolan in charge. I cannot say how much gas was in No. 1 gasholder, but it will contain one million cubic feet. No. 2 gasholder will contain the same quantity. I know the valves were quite perfect at half-past four, when I left the works. I heard the explosion when I was in my house. I did not go into the meter-house during Tuesday.

By the CORONER: There was no escape of gas whatever from the governor when I left the works, nor had there been at any time previously. No one ever called my attention to an escape of gas. It would not be true if any one were to say that I had received such a complaint. The valves in connexion with the governor could very easily be got at. When I examined the place afterwards, I found that the mains connected with the governor were not destroyed. I found that one of the valves was not quite shut. I accounted for that by supposing that the man in charge was endeavouring to do his best to put the governor out of action, and shut off the gas. I saw nothing to indicate that the valves had in any way been tampered with mischievously.

By the JURY: The plasterers or any one in the place could have got at the governor. The man I left in charge was not killed. I know that the plasterers were at work in the meter-house that day.

Harvey was recalled, and explained by the model the way in which the gasholder was being canted by the labourers at the time he went into the meter-house.

Examination of *Bartlett* continued: If the governor was tilted in this way, the gas would escape. It is impossible for me to say how it came to be out of its regular position. It is so delicately hung that a person treading upon it would do it. The tank containing the governor is about 3 ft. 6 in. across. I quite agree with the theory laid down by Harvey, as to the cause of the escape of gas, and its increased escape from the men holding the governor down. I cannot account for it in any other way. It could not possibly have got out of the proper position, unless something had been done to it. If the men had not touched it, it would probably have righted itself, supposing that it had been disarranged by some one accidentally putting his foot upon it. I believe the gasholders were injured from the concussion of the meter-house. It would be impossible for the gas in the holder to ignite through the mains.

By the JURY: I account for No. 1 gasholder exploding from the fact of its having previously been injured by the concussion occasioned by the explosion of the meter-house. In the confusion it seemed to me as though there were two explosions, but they were so close together as to be scarcely discernible as such. I have never heard of the gasholders not working properly. I believe they were two of the best in London. I cannot tell the substance of the plates by the wire-gauge. The gasholders contained nothing but coal gas. The only way I can account for the gas from one holder exploding, and in the other burning itself out, is that the fracture caused by the explosion in the meter-house was to so great an extent that a larger volume of gas escaped from No. 1, which ignited at once, while the other fracture was so much smaller that the flame when it first ignited was not larger than the fire in an ordinary grate.

By Mr. BESLEY: When I speak of the gas in No. 1 holder exploding, I do not mean that it became ignited till the holder was fractured. It was impossible it should do so.

Mr. BESLEY: You mean that after it was fractured a large quantity of gas escaped into the air, and it then exploded?

Witness: Yes.

The FOREMAN: The gasholder No. 1 having been fractured by the explosion from the governor in the meter-house, why does it not follow that from that hole the gas should come out and light just as it did in gasholder No. 2?

Witness: Because there was more room for the gas to come out, the fracture being larger.

The FOREMAN: I saw the thing myself. I saw the gas from the hole in No. 2 burn itself out, whereas the witness has said that the hole in No. 1 exploded the gas. Both were made of the same material, and I want to know why one exploded and the other burnt itself out. The fire from the meter-house caused both accidents, and I should say if they contained the same material it would have had the same effect on both gasholders.

Mr. BESLEY: Can you tell the jury how it is that No. 1 gasholder after it was fractured went off suddenly, and that the contents of No. 2 burnt out?

Witness: Because the aperture would not allow of any more pressure. There was as much volume, but the gasholder had no power over it.

The FOREMAN: Was there not as much gas in No. 2 as in No. 1?

Witness: More.

The FOREMAN: Then I cannot understand it.

A JURYMAN: It seems to me that the explanation is very plain. In the first case there was a larger fracture, and consequently an explosion; in the other, a smaller fracture, and no explosion.

The CORONER: I take it, from what the witness says, that there was an explosion from an escape of gas taking place through some fortuitous circumstance, which ignited, causing injury to the gasholder, and that the flame from the one communicated itself to the other. (To witness:) Do you conceive that the gasholder could have exploded internally?

Witness: It could not possibly do so.

The CORONER: Whatever it was, was external?

Witness: Yes.

A JURYMAN: Pure gas itself will not explode.

Witness: Not if confined; not until it is mixed with air.

The CORONER said (referring to some further inquiries by the foreman): I think you are rather going to secondary causes. We know that the building was destroyed and great damage done, but the gasholder exploding was a secondary cause. If the other had not occurred—if the crown of the gasholder had not been broken in, it could not have exploded. This was the effect of the first cause.

By Mr. MAYO: The quality of the gas in both holders was the same.

Mr. BESLEY: When you saw the gasholder after the accident, it was down. Did you notice that the plates of the crown were turned back, and that some of the *débris* of the meter-house was deposited on the turned over part—the inner portion of the gasholder?

Witness': Yes.

The CORONER: Do you know whether any new experiments were being tried relative to the making of gas at this time?

Witness: None that I am aware of.

By the JURY: Gas is not combustible while the air is kept from it. If air were mixed with it in the gasholder, it would not explode while there was a certain pressure upon it, and then it would require to be ignited.

The FOREMAN: I may as well explain. I have heard it reported——

The CORONER: Never mind what you have heard. Put your question.

The FOREMAN: When you are putting gas into the holder, you put in a certain quantity of air?

Witness: No.

The FOREMAN: Is there no possibility of its getting in?

Witness: No. Our gas is proved in the district, and it is quite what it ought to be.

The FOREMAN: There is no air mixed with the gas?

Witness: No.

The CORONER: Supposing you were to erect a new gasholder, and that was what you call hermetically sealed, so that there could be no escape; before the gas is turned into it from the process of making, is anything done to exhaust the atmospheric air?

Witness: Yes; the gasholder is blown out.

The CORONER: Do you know that that had been done when this gasholder was put in use?

Witness: Yes; when first put in use.

The CORONER: Then could air generate in it?

Witness: No, sir, it is not possible.

The CORONER: Then that answers this gentleman's question. In your opinion, the accident occurred from what took place externally?

Witness: Yes.

Mr. BESLEY: How long had the gasholder been in use, to your knowledge?

Witness: Between eight and nine years.

Mr. MAYO: To be explosive, I believe it must be mixed with five times its volume of atmospheric air?

Witness: Yes; but not to explode a gasholder then; it depends on circumstances.

By the JURY: The air is blown out by making a temporary connexion on the outlet of the gasholder and blowing through that till the air is ex-

hausted. We open the valve and let the weight of the gasholder come upon the connexion. Afterwards it is hermetically sealed, and no air can get to it.

By the CORONER: Everything had been done in this case which was required for the safety of the works. I have never seen any want of attention to the interests of the company by any of the men. I have never heard any expression on their part against the company. I have no apprehension that anything was done maliciously to cause the explosion. It depends upon the consumption, how often the gasholder is emptied. We were working into it every day. It was never completely emptied; there was always a pressure upon it. I quite agree with the other witnesses as to the cause of the displacement of the gasholder, and that that gave rise to the escape of gas, which became ignited, and led to the explosion.

Dr. *Henry Letheby*, examined by the CORONER.

I reside at 17, Sussex Place, Regent's Park, and am a doctor of medicine and of philosophy. I am professor of chemistry in the college of the London Hospital and medical officer of health, and have been gas analyst for the City of London for about 13 years. During that time I have had a large experience in the properties of coal gas, and have had to inquire into the circumstances of several accidents from the ignition and explosion of gas. I have also been deputed by the Secretary of State to inquire into matters connected with the manufacture of gas. At the request of the London Gas Company, I have paid two visits to the scene of the recent accident, for the purpose of examining the effects of the explosion and the cause thereof. My first visit was on Saturday last, in company with Professor Pole, Mr. Jones, the engineer of the Commercial Company, and Mr. Watson, the engineer of the London Company. My second visit was on Monday last, in company with Mr. Siemens and Mr. Evans, the engineer of the Chartered Gas Company. My attention was first directed to the state of the gasholder No. 1, where the greatest mischief was done, and I observed that the gasholder had been bodily moved, as if by a powerful pushing force, from south to north—that is, from the meter-house towards the main road. This was evidenced by the displacement of the holder, and by the breaking or driving in of the rollers which pressed against the guide-rods of the columns; in fact, the holder had been pushed with so much force against the columns on the northernmost side that it had broken the rollers or driven them into the iron plates of the holder to the depth of several inches. On this side, however, the crown of the gasholder was perfectly sound, and did not indicate the action of any internal explosive force upon it; but at the opposite, or southern side, next the meter-house, the iron plates which formed the crown of the holder were torn through and folded over, as if from the action of a very local internal force, and there rested upon them a large mass of lead, the *débris* of the meter-house, which must have fallen there after the plates had been rent and turned over. I also noticed that the framework of the crown of the gasholder was perfectly sound, which would not have been the case if there had been an explosion of the contents of the holder. Again: at the nearest point to the meter-house, and resting on the upper edge of the lower lift of the gasholder, there was a large piece of the sheet-iron plates from the side of the upper lift of the holder. This had evidently been torn off from the side by the descent of the holder after the gas had escaped; and at the time of my second visit I observed, when the water was drawn off from the tank, that the piece of iron was from the side of the upper lift, about four feet from the top, and that it must have been displaced by a force acting from without. I then observed the remains of the meter-house, which stood about 22 feet southward of the holder already mentioned, and here, without doubt, a violent explosion had occurred, for the walls of the house were blown down, and the masonry of the neighbouring buildings to the east of it was shattered and blown in. The station-meter and the three governors, more or less injured, still stood upon the floor of the house. Farther away, at a distance of 320 feet still southward of the meter-house, was the gasholder No. 2, and this also had been injured by the explosion almost in the same way, but not to the same extent, as the gasholder No. 1, for the plates at the top and side nearest to the meter-house were started, so that the gas escaped and quietly burnt itself out. Lastly, my attention was directed to the mischief done to the roofs and windows of the neighbouring houses; and although it indicated a considerable concussion or movement of the atmosphere, yet it was by no means so considerable as must have been the case if either of the gasholders had exploded. If there had been an explosion of either of these gasholders with that cubic capacity of air and gas in them, there would not have been a vestige of the buildings round here remaining. Looking, indeed, at the facts, I am clearly of opinion that the explosion took place in the meter-house, and nowhere else; that the explosive force radiated in all directions, and, acting on the nearest gasholder, not only pushed it northward, and so forced it against the rollers and distant bearings, but it also drove in the side of the holder, and then moved onward in a continuous line through the crown, thereby throwing up and turning over the sheet-iron plates which formed the top of the holder. All this must have occurred at the same instant of time, and before the *débris* of the exploded meter-house had fallen on the ruptured holder. The same force, acting southward, produced a rent in the top of the more distant gasholder, No. 2, and caused the escape and ignition of its contents. It also radiated eastward, and demolished the masonry of the neighbouring buildings. The force of the single explosion in the meter-house was quite sufficient to effect this, for the volume of the explosive mixture of air and gas was about 61,000 cubic feet; and if this had been a mixture of eight or nine parts of atmospheric air with one of gas, the explosive power would have been equal to about 51 lbs. on the square inch—a power amply sufficient to cause the effects which were observed. If, indeed, the gasholders had contained such a mixture, and had exploded, the whole of the framework, as well as the sheet-iron plates of the holders, would have been blown to pieces, and all the neighbouring buildings would have been destroyed. It is evident, therefore, that there was no explosion of the contents of the gasholders, but only of the mixed gas in the meter-house; in fact, it is hardly possible for a mixture of air and gas to be formed in a gasholder, unless at the time when it is first filled, and without such mixture gas cannot explode. The opinion I have given is based on the effect produced upon my own mind by an independent personal examination of the premises, and not from anything I have been told in reference to the matter. I have heard the evidence given by the two witnesses, Harvey and Bartlett, and remember what the former stated with respect to what he himself noticed the men doing in the meter-house just prior to the explosion.

The CORONER: Looking at the circumstances of the explosion, is it feasible that what he has stated might have given rise to this unfortunate explosion?

Witness: It is an explanation which is perfectly satisfactory to my mind with regard to the way in which the gas had escaped into the meter-house.

The CORONER: By the unfortunate displacement of the gasholder from its proper position it allowed the escape of the gas, and also caused the water to be thrown out?

Witness: It did.

The CORONER: Now, does coal gas ever explode except when mixed with atmospheric air, and coming in contact with flame?

Witness: Never.

The CORONER: Looking at the explanation which these persons have given, have we, in your opinion, arrived at the first cause of the explosion?

Witness: Yes; at a perfect explanation of all the results I have observed here.

The CORONER: You will understand me when I say that the results, lamentable as they are, we do not take any notice of, except as they enable us to arrive at first causes, although, after what has been explained, if a man knew that by so doing he was likely to create mischief, of course it would be a very serious matter to himself if he were alive. It is perfectly consistent to your mind that the evidence produced to-day shows what gave rise to this unfortunate occurrence?

Witness: My mind is perfectly clear upon the subject.

The CORONER: Do you think, from what we have had explained, that that could have been done with intention?

Witness: Oh, no.

The CORONER: It might have been some unforeseen circumstance?

Witness: Some one ignorant of the nature of this instrument had probably jumped upon it or dashed out some of the water, and then, the instrument being turned a little on one side, it lifted the edge out of the water which otherwise would have confined the gas. The escape therefore took place, and the very act of these men, with the intention of pushing it down again, made matters worse, because they all pressed on one side. If the pressure had been equally distributed all round, the probability is they would have shut it down.

The CORONER: And that, under the circumstances, we may almost take it for granted that this was a fortuitous circumstance in your opinion?

Witness: Quite. It never could have arisen from the operation of the instrument itself. There must have been some displacement of the water from the tank of this governor; that displacement of water, I think, was produced by some one jumping or pressing upon the bell of the meter and forcing it out of the water, and thus the meter was thrown on one side.

The CORONER: The gas is conveyed into the governor under pressure, I believe.

Witness: The gas is conveyed into the governor through the lower tube and passes into an upper chamber, which is so contructed that, however great the pressure may be, the ordinary service to the public is constant and uniform. [Witness explained by the model the construction and working of the instrument.] I have examined those now in use and one which is in process of manufacture.

The CORONER: Have you looked at the construction of these governors and of the works generally?

Witness: I have.

The CORONER: May I ask your opinion of the way in which they have been carried out?

Witness: It appears to me that they are well constructed, the works also.

The CORONER: Do you for a moment suspect, from what you see of the existing works, and from what you have heard to-day of their being in operation for some six years, that there could have been any want of attention to the interests of the public by the persons carrying out these works?

Witness: No. That the governor was working properly and was in good order, is shown by the fact that it was in operation from ten in the morning, and the gas was passing through it.

The CORONER: If there had been an escape during that time, would there not have been an overpowering effluvium or smell.

Witness: It must have been noticed, and probably by strangers more than by those engaged on the works.

The CORONER: Would that convey to your mind, as no one called attention to such an escape, that the works were in a proper and suitable condition?

Witness: Yes, it would.

The CORONER: And that there was no reasonable apprehension of any want of attention to the interests of the community on the part of the company.

Witness: Yes; I cannot perceive anything of the sort.

The CORONER: The information you have received here to-day quite convinces you that this was an accidental circumstance rather than one arising from a want of circumspection on the part of any one?

Witness: I think it was quite accidental, arising from no want of care on the part of the company at all.

Mr. BESLEY: The foreman wishes to have it explained to him how it is that the gasholder No. 1 is so much more damaged than the gasholder No. 2.

The witness explained on the plans the positions of the two holders in relation to the meter-house.

The CORONER: You have heard the statement as to the quantity of water said to be in the tank. Would that be sufficient for the purpose?

Witness: Quite sufficient.

The CORONER: So long as the bottom of the governor was under the water there would be no escape.

Witness: There could not be.

The CORONER: Now, then, explain about the injury to the gasholders.

Witness: The explosion took place in the meter-house, that I am satisfied of. You must look at that meter-house as the centre from which at the time the force of the explosion radiated in all directions. Now, striking a line from the centre of that meter-house, you will find that on the one side it will just come through the place where the hole in the gasholder No. 1 was. No explosion took place in that holder; there is nothing but the effect of main force upon it, and there was no injury done to any other distant part of that gasholder. The distance of No. 1 gasholder is 22 feet from the meter-house; the distance of No. 2 gasholder is 320 feet. The power diminishes more than in the exact distance; we have here, therefore, a less power—much less—than the distance of 320 feet, and that radiating. A line drawn from the centre of the meter-house through gasholder No. 2 strikes against its injured plates, and out at the top also. The injury was done in the exact line of the force of the explosion.

The CORONER: That shows that the gasholder was not exploded from any internal circumstance.

Witness: Exactly.

The CORONER: And that the injury was caused from external pressure.

Mr. BESLEY: If there had been an explosive mixture in No. 1 gasholder, what effect would it have had upon the mains?

Witness: It would have blown them all to pieces.

Mr. BESLEY: And if the mains had been in connexion with the gas-holders at Vauxhall, there would have been an explosion there?

Witness: There would. I may observe that 2 per cent. of atmospheric air mixed with gas, will lower its illuminating power 10 per cent., and when you come to about 50 per cent., its illuminating power is entirely gone. You must have ten times the quantity of atmospheric air present before there can be such an explosion. At the instant that the force of this explosion knocked a hole in the side of the gasholder and lifted the plates from the roof, the gas in the holder escaped as a body of fire, with a noise of a similar description to that produced when a light is applied to the top of the chimney of an Argand burner on the tap being turned on.

A JURYMAN; The gas was fired in the meter-house, from the light in the meter-shop.

The CORONER: Unless we can show any other cause, the reasonable assumption is, though it has not been clearly proved, that there was a fire in the meter-shop; that by reason of the gas escaping in the volume it did out of the governor, it came in contact with some fire and so caused the explosion. The witness has said that came from the direction of the meter-shop. (To witness:) Did you ever know gas supplied to the public in which there was a mixture of atmospheric air?

Witness: There is always a small quantity of atmospheric air in gas, arising from the opening of the retorts for the purpose of charging and discharging them, but it never amounts to 1 per cent.

The CORONER: That would have no effect upon it to make it explosive?

Witness: Not at all.

The FOREMAN of the JURY: In the event of the gasholder being tilted on one side, would enough gas have escaped to blow the meter-house down, and make the fissures in the two gasholders?

Witness: Yes. The volume of explosive mixture I think I stated was 60,000 cubic feet. If you take the tenth part of that—which is the proportion that must have escaped to mix with the atmospheric air, and there is no doubt from the size of the bell of the governor that that may have escaped into the meter-house——

The CORONER: And there would be a continuous supply of gas from the one to the other?

Witness: Yes.

The CORONER: And that would go off in a flash like gunpowder?

Witness: Yes.

The CORONER: Do you apprehend there was gas sufficient in the governor to cause the first explosion—sufficient to be conveyed to the fire?

Witness: Yes; and the governor was in communication with the mains, so that there would be a continuous supply of gas as fast as it leaked out.

The FOREMAN: We have had it stated by one witness that the ignition was caused from the fire in the meter-makers shop. Now between that shop and the meter-house I judge, going over the works, there was a space of 10 feet. Would it be possible for a flame from the burner there to ignite the gas which rushed from the meter-shop?

Witness: Quite so. Gas, if it is escaping and being carried by a current of air, will fire 20 or 40 feet away.

The FOREMAN: But here was an open space between.

Witness: That was so; but the gas would be carried across, and first one particle and then another would be fired till the whole was in a blaze. The flame will run along as it would with a train of gunpowder.

The FOREMAN: What is the difference of strength between the plates of a gasholder of 1 million cubic feet capacity and one of 1000 feet capacity.

Witness: That is a practical question which I can hardly answer.

The FOREMAN: Will you tell us the effect of gas upon iron?

Witness: It has no effect upon iron whatever.

The CORONER (to the foreman): May I put this question—the probability seemed to you to be that the gasholder was fired internally. Does it now appear, from this evidence, that your mind may be set at rest on the point?

The FOREMAN: It has relieved my mind to a great extent.

The CORONER: Do you wish to put any question to Dr. Letheby?

The FOREMAN: The question I put to the witness was this—assuming both the gasholders to be made of the same material, how was it that the gas in the one burnt out, and in the other exploded with so much violence?

Witness: I think I understand your question. Here are two gasholders, one being near the meter-house, which was struck in the direct line of force with a blow like a cannon-shot, which penerated the side and came out at the roof, drawing off the roof-plates. The gas escaping in large volume was fired in a moment. The other gasholder was 320 feet off; the same line of projectile force strikes it, but at that distance with diminished violence, and the gas escaping burnt itself out.

A JURYMAN: Then, of course, the gas does not explode in the gasholder; it is only when it gets out, and becomes mixed with the air?

Witness: Quite so.

Mr. *Sidney Jones*, examined by the CORONER.

I am a lecturer and surgeon at St. Thomas's Hospital. I saw and attended the men who were injured by the explosion and taken to that institution. Three of them subsequently died there. [Witness detailed, at some length, the nature of the injuries sustained by the unfortunate sufferers.] None of them were able to give an account of the accident. There were fifteen persons admitted originally, some having very severe injuries, but they are as well as can be expected under the circumstances.

Michael Doolan, examined by Mr. BESLEY.

I am in the employ of the London Gas Company as assistant valve-man. I relieved Bartlett of the charge of the governors and valves on the morning of the explosion, at half-past four o'clock, and took charge of them myself. It was my duty once every hour to take stock, which meant seeing the quantity the gasholders contained at that time, for which purpose I had to leave the meter-house. At six o'clock in the morning the plasterers came to work. They had scaffolds, both permanent and removable, prepared for doing their work. They were engaged that day in plastering the side walls in the meter-house, some of them were not three feet from the governors. The scaffolding nearest the governor was permanent. There were about a dozen men at work in the meter-house at the time—one of them the contractor, O'Donnell, who was killed. Gas was being supplied from Nine Elms to Vauxhall at the time, from eleven to two. During the whole of that time there was no perceptible escape of gas. I left the meter-house about two o'clock to take stock of the holder No. 1, which then contained from 620 to 630 cubic feet of gas. After booking the stock I returned to go to the meter-house, and was near the outside door when one of the men cried out that there was something wrong with the governor. I got in through the window of the meter-house, when I saw the small governor blowing off gas and the water flying to the ceiling. I fetched Mr. Marvin, the deputy-manager, and we proceeded to shut off the outlet-valve of the governor. On our way Mr. Marvin doused the test-light in the meter-house. He then directed me to go below under the flooring and shut off the inlet-valve to the governor. It took about a minute to close it. I had closed it about half way when the explosion took place. I was knocked down, but not rendered insensible. I was preserved by the ruins from being injured.

By the CORONER: When I jumped in at the window, I noticed an escape of gas, but I did not observe the position of the governor. The escape of gas was very strong. If the governor had been in its proper position there could have been no escape. The water could not be forced out of the tank unless the holder were tilted on one side or the other. I had cautioned the men not to tread upon the meters. I did so three days before the explosion took place. It was O'Donnell, their late master, I cautioned. I did so, because I knew that a pound weight upon the governors would make an alteration in the pressure. It was as a precaution, in case anything should arise. No one had told me to caution them, but I was afraid that the men not understanding the meter might meddle with it and interfere with my duty.

By Mr. BICKLEY: There was no light in the meter-house at the time to my knowledge. It is usual to keep the test-light burning, but that was doused by Mr. Marven before the explosion. There was no one smoking at the time to my knowledge. I had not during the previous week smelt any escape of gas, nor was any complaint made to me that there was such an escape. If there had been I should have informed Mr. Marvin. I have never had occasion to do so, though I have been working there more than four years.

By the JURY: During the two months the governors had been at the works they had been in perfect condition, and had not required repairing. When I left at two o'clock to take the stock they were in good order. During my absence, something must have occurred to cause the escape. I cannot tell how many men I then left in the room. I did not leave any one in charge of the governors. I never anticipated anything happening while I was away. When I left I did not notice any one standing on the scaffolding near the governor. I have no reason to suspect that any one interfered with it maliciously. It was on account of one of the plasterers men putting his foot on the governor one day that I cautioned them.

By Mr. BESLEY: If I had been present at the time of this escape, I could not have done more than I did to prevent the explosion. I was not away from the meter-house more than two or three minutes, perhaps not so much.

By the CORONER: I had never heard any of the men utter any threat nor seen any of them do anything wrong, except by mischance. The man who put his foot on the governor three or four days before, while doing the ceiling, said he did not think he was doing any harm. He did not tread very heavily, for he only raised the pressure 3/10ths. I never saw any men smoking in that building.

By the JURY: There was no fire in the meter-room to dry the plaster. There was a fire in my office which was on the other side entirely, at a distance of about fifteen yards. The door of that room was not left open, nor the window. I do not know whether there was a fire in the meter-shop. The blacksmith's shop was about ten or twelve yards from the meter-house. I have never had charge of any governors before these.

Mr. David Watson, examined by Mr. BESLEY.

I am the chief engineer of the London Gas Company's works at Nine Elms. I have been so for upwards of five years. The works were erected under my superintendence. Everything I believe was done according to the best plans known to me as a gas engineer. I knew this small governor while it was at work at Vauxhall. It worked perfectly. I put it up about five or six years ago, and it was in daily use there up to the time of its removal. It was put up at Nine Elms under my superintendence, and was brought into use there about two months ago. During the whole of the time subsequently it worked perfectly, and there was no complaint of any escape of gas from it, or of any defect in its construction. I was in the meter-house about half an hour before the explosion took place. There was then no escape of gas whatever. If there had been it must have been perceptible. When I passed the door of the meter-shop, there were the lights burning that were used for testing the meters. They were Argand burners, five or six of them, with glass chimneys. The distance from those lights to the governor which exploded was 58 feet. The window of the meter-house was in a straight line in the direction from which the flash of light was said to be seen. From eleven o'clock that morning up to the time of the explosion we had been delivering gas from Nine Elms to Vauxhall. Our books show that from eleven to twelve o'clock we sent 55,000 cubic feet; from twelve to one o'clock, 50,000 cubic feet; and from one to two o'clock, 41,000 cubic feet of gas. The valve was not shut off till after the explosion, so that there had been no interruption in the supply. If there had been any explosion in the gasholder at Nine Elms, it would have been felt at Vauxhall, and the gasholder there would have been destroyed; the mains, too, I should think.

By the JURY: When I was in the meter-house, at half-past one o'clock, the plasterers were at work—I should think about ten or twelve of them. The last witness was there at the time. The governor and the works generally were in perfect order.

Mr. MAYO: Have you not, within the last twelve months, received numerous complaints from the inhabitants of Pimlico with regard to the badness of the gas?

The CORONER: What has that to do with the question? (To witness:) Since the operation of this meter commenced, have there been any experiments going on with regard to the manufacture of gas?

Witness: None whatever.

The CORONER: You are quite sure there have been no experiments likely in any way to put its working out of gear?

Witness: None, sir; in fact, we have had no time for experiments.

The CORONER: What was the nature of the building which you call the meter-house?

Witness: Brick and iron. [Model produced and explained.] There was a little timber in the roof, but as little as possible. The main part of it was iron and slate, with a glass ventilator. The height to the cornice was 23 feet, the width 39 feet, and the entire length 79 feet, inside measurement. By the explosion the building was entirely demolished. I did not see any of the unfortunate men got out from the ruins. The mass of brickwork that fell upon them was very considerable. We have had no complaints from our workmen with regard to the wages received, or anything of that kind. I have no reason to suppose that any person in the place would act from a malicious motive. The men were perfectly satisfied. I have heard what Dr. Letheby and the other witnesses stated as to the probable cause of the first explosion, and I have no doubt that that is the true cause. It arose from some displacement of the governor, which I believe was an unforeseen circumstance on the part of the person who did it. My impression is that it was done by some person on the scaffolding, without intending to do mischief.

The CORONER inquired whether the jury would desire to have any further information.

A JURYMAN said they had not yet heard the evidence of Mr. Marven, who had been referred to.

Mr. *John Marven* was accordingly called. He said he was assistant-manager of the works, and that he had been all his life in the service of the company. Had been on duty the whole of the day of the explosion. Saw the governor ten minutes before. It was then in perfect working order. Went into his office to write an order. In a few minutes after, Doolan came in, and said the governor was blowing. He left the office immediately with Doolan. In passing, he put out the small test-light in the meter-house. Doolan and himself then shut the outlet-valve, and went below to the other valve. Doolan was in the act of shutting it off when the explosion took place. Was aware that gas was being sent to Vauxhall up to the time of the explosion. The governor appeared to be in good working order up to that time. Knew that plasterers were at work in the meter-house. Knew O'Donnell and Thomsett. Knew the others by sight, but not by name. Knew Cox and Smith. Saw them on the premises that day. Heard of no previous complaint of escapes. Could see the escape of gas the moment he saw the governor. What Doolan and witness did was intended to stop the escape of gas. Never heard of any threat being used by any person employed on the works. In the way of prudence he had cautioned the men against stepping on the governor. The scaffolding in the meter-house was about a foot above the governor. Was not aware that any of the men had been holding the governor down. No time was allowed him to take notice.

The CORONER asked the jury whether they believed any further light could be thrown upon the affair. He thought there was one circumstance upon which they might congratulate themselves, and that was that they had had the opinion of Dr. Letheby, who was a scientific gentleman well acquainted with works of this kind.

The jury intimated that, in their opinion, further evidence was not necessary.

The CORONER briefly summed up the evidence, remarking that it was his desire to ascertain if there had been any culpable disregard of the necessary precautions which are adopted in such establishments. He thought the jury would agree with him that the evidence showed there was no cause for such suspicion. It was, however, for them to say how they considered the explosion originated.

The court was then cleared, and the jury remained in deliberation for about half an hour. On the doors being opened,

The CORONER said: The jury are perfectly unanimous in the verdict they have found. They say—"The jury find that the deceased persons met their deaths accidentally; at the same time we consider it would be advisable that the governors should be covered or so protected that persons unacquainted with the nature thereof could not by possibility get access to them."

Mr. BESLEY said, on the part of the London Gas Company, he had to state that they felt very much indebted to the jury for the attention they had paid to the evidence produced that day, especially as, in all probability, some of them had come there with wrong impressions as to the explosive character of these gasholders. Those impressions he had no doubt had been corrected by the evidence of the witnesses, and especially by the explanations given by Dr. Letheby as to the manner in which the accident must have occurred. There had been hitherto an erroneous impression on the public mind that in this case the explosion took place within the gasholder, the recurrence of which, of course, was a terrible thing to contemplate, seeing how frequently gasholders were erected in populous localities. It was extremely satisfactory to have that matter cleared up on the testimony of Dr. Letheby, a witness altogether independent of gas companies, and a gentleman who was employed in looking after those companies. It must, he said, be satisfactory to the jury to have their minds set right upon that point, as to the explosibility of these gasholders, the consequences of which, if it were so, would be so terrible.

The CORONER: In other words, you mean to convey the idea that there is no possibility of a gasholder igniting.

Mr. BESLEY: It is physically impossible for a gasholder to explode. We had other scientific gentlemen in attendance, whom we should have called to satisfy the jury if they had required further evidence on this point.

The FOREMAN of the JURY: Probably the reason of your remark is in consequence of something that was said by me. I can only assure you that for some twelve months I have had that idea in my mind, and it was in justice to the London Gas Company, and having regard to my own oath, that I put the question.

Mr. BESLEY: I am exceedingly obliged to you for having done so, especially as the explanation seems to have satisfied your mind.

A JURYMAN: I may say that the jury consider the London Gas Company have shown every desire to bring out the truth, and they are highly satisfied with them in regard to that point.

The proceedings then terminated.

CONVICTION FOR STEALING GAS AT HASTINGS.—William Stickells, coach-builder, was convicted at the Hastings Petty Sessions, on the 9th inst., of feloniously burning 1000 feet of gas the property of the Hastings and St. Leonards Gas Company. The supply of gas to the defendant had been cut off and the meter removed in consequence of the non-payment of the gas-rates due, but the severed pipes had been restored by the defendant and the meter dispensed with, so as to supply three lights, which were found burning. Defendant pleaded that he had erred through ignorance, and he was under the impression that the company would have proceeded against him in the county court. The company did not wish to press the case unduly against the defendant, and the bench sentenced him to seven days imprisonment.

LIGHTING OF BOMBAY WITH GAS.—Information has been received by the Bombay Gas Company of the satisfactory lighting of the city and fort, without an accident of any kind. The works are situated about two miles from the city, to which there is a leading main of 24 inches diameter. The district lighted extends to a distance of six or seven miles, and the importance of the undertaking may be judged of by the fact, that the municipal commissioners contemplate expending more than £20,000 per annum on the street illumination alone. The works, as already constructed, are capable of supplying nearly 200 million cubic feet yearly, but are all arranged for duplication, on land purchased for the purpose, and there is every reason to believe that the anticipated enlargement will be very speedily required. The works were constructed under the direction and from the designs of Mr. Hawksley, the company's engineer, and have been brought into operation by the resident manager, Mr. Proud, formerly of Wolverhampton. Mr. D. T. Evans, of the Temple, has been the chairman of the company from its origin, and may be congratulated on the success which has followed the negotiations carried on by him with the Bombay Government for obtaining the Act of the Legislative Council under which the company is locally constituted.

EXTENSION OF THE HUDDERSFIELD WATER-WORKS.—At a special meeting of the Huddersfield Improvement Commissioners, Mr. Crosland, M.P., on behalf of the Water-Works Commissioners, explained the projected scheme for increasing the water supply of the town and district. The plan may be briefly stated to be the supply of Longwood, Lockwood, Mold Green, Newsome, and Lindley, in addition to Huddersfield, with water obtained from a catch ground of over 1500 acres at Meltham, and reservoir of 84 acres at Blackmoor Foot, to store a supply and furnish compensation to millowners. The present water-works, when the mains are full, are calculated to supply Huddersfield township (34,000 inhabitants) with 13 gallons per head daily; the projected water-works are calculated to supply the townships mentioned (present population 63,000) with 25 gallons per head if the population were 100,000. Huddersfield township now having a water-work, the other townships will have to contribute extra to be placed on an equality with Huddersfield in regard to the water-rents to be paid. The cost of the scheme is estimated at £100,000 or £120,000, if two streams be included and a reservoir made in the Wessenden Valley, which is doubtful. The water was stated to be of very good quality. The scheme as a whole was favourably received by the Improvement Commissioners, but no resolution was passed in reference to it.

COMPETITION OF FOREIGN WITH ENGLISH MADE IRON.—The competition of the French and Belgian and of the North of England masters which was exemplified in the almost neck-and-neck race on Friday last at Leeds—when a French firm lost the order for 2588 tons of iron water-pipes required by the corporation by only £4, in a contract which was accepted at £13,609—is spoken of in the expressive phrase of, "That's coming very near home!" Then, it is known that several English firms tendered a fortnight ago for 10,000 tons of rails required for the Netherlands State Line, but were beaten by foreign competitors. The English offers ranged from £7. 16s. 5d. to £8. 16s. 7d., but the contracts were awarded to MM. de Darlodot, at £7. 2s. 6d., and MM. Blondiaux and Co., at £7. 3s. per ton.

Share List of Metropolitan Gas Companies.

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum	Price per Share.
	£		£ s d	£ s d	£ s d
5000	10	Anglo-Romano . .	10 0 0	9 0 0	10 to 12
5000	20	Bahia (Limited) . .	20 0 0	£5 intr.	17 to 17½
1000	20	Do., preference .	20 0 0	10 0 0	28 0 0
750	20	Do., do., redeem.	10 0 0	10 0 0	12 to 13
20000	5	Bombay (Limited) .	5 0 0	£5 intr.	5⅜ to 5½
10000	5	Do., second issue	5 0 0	£5 intr.	5⅜ to 5½
10000	5	Do., third issue .	2 0 0	£5 intr.	2⅜ to 2½
5000	20	Brit. Provincial L.	20 0 0	7 10 0	29½ to 30½
8200	20	Do., new . . . . (Norwich, Hull-Sculcoates, Shelton Potteries, Trowbridge, & Holywell.)	20 0 0	7 0 0	27 to 27½
12000	50	*Chartered*	50 0 0	10 0 0	76 to 78
6000	50	Do.	30 0 0	10 0 0	45 to 45½
10000	20	*C. of London*, Ash.	20 0 0	10 0 0	30 to 30⅝
10000	10	Do., B shares	10 0 0	4 0 0	7 5 0
8000	10	Do., new shares.	10 0 0	10 0 0	15 to 16
35000	25	City of Moscow (L) Colonial & General	5 0 0	£7 intr.	3 to 3¼
17490	25	*Commercial* . . .	25 0 0	10 0 0	41¾ to 42
5000	20	Continental G. & W.	6 0 0	6 0 0	
2500	20	Continental Union.	20 0 0	8 0 0	18 to 20
17500	20	Do.	10 0 0	8 0 0	9 to 10
5827	5	County & Gen. (L)	5 0 0		
2000	5	Do., preference . (Pater, Pembroke, Ely, Lea Bridge, Northfleet, Walton, & Ware.)	5 0 0	6 0 0	
5000	10	*Crystal Pal. Dist.*	10 0 0	10 0 0	16¼ to 17
5000	10	Do., preference .	10 0 0	6 0 0	12¾ to 13
4000	50	*Equitable*	50 0 0	10 0 0	79½ to 80
4000	25	Do., new shares.	21 0 0	10 0 0	35 to 36
23406	10	European (Lim.) .	10 0 0	10 0 0	13¼ to 13½
12000	10	Do., new shares. (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	10 0 0	6¼ to 7
20000	10	*Great Central Gas Consumers* . . .	10 0 0	10 0 0	16 to 16½
5000	10	Hong Kong (Lim.)	10 0 0		11 to 12½
26000	50	*Imperial*, old sh.	50 0 0	10 0 0	82 0 0
1300	100	Do., bonds . . .	£100	10 0 0	197 to 198
7000	25	Imperial Austrian .	10 0 0		
28000	50	*Impl. Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam, Aix-la-Chapelle, Antwp., Bordeaux, Brussels, Cologne, Frankfort-on-M., Haarlem, Stolberg, Toulouse, & Vienna	43 15 0	16 0 0	95 0 0
3000	40	*Independent* . . .	40 0 0	10 0 0	65 to 70
3000	10	Do.	10 0 0	5 0 0	8 to 9
3000	20	Do.	10 0 0	7 10 0	11 to 13
6886	50	*London*	50 0 0	10 0 0	70 to 75
5519	25	Do., 1st pref. .	25 0 0	6 0 0	29 to 29¼
568	50	Do., 2nd pref. .	50 0 0	6 0 0	
219	50	Do., 3rd pref. .	50 0 0	6 0 0	
18781	*l*	Do., 1st pref. sk		6 0 0	
11828	*l*	Do., 2nd pref. sk		5 0 0	
12000	5	Malta & Medit. (L.)	5 0 0	2 10 0	
30000	5	Oriental, Calcutta	5 0 0	8 0 0	5⅞ to 6
30000	5	Do., new shares.	1 0 0	8 0 0	1 to 1¼
10000	5	Ottoman (Limited)	5 0 0		3½ to 4
10000	10	Pará (Limited) . .	10 0 0	£5 intr.	10½ to 11
27000	20	*Phœnix*	20 0 0	10 0 0	32 to 34
3600	100	Do., new	10 0 0	7 10 0	14 to 16
144000	Sk.	Do. (capit. profits)		5 0 0	
5000	20	*Ratcliff*	20 0 0	10 0 0	32 to 34
	20	Rio de Janeiro (L).	20 0 0		20 to 20½
4138	5	Singapore (Lim.) .	5 0 0		
2000	5	Do., preference . Shanghai	5 0 0	7 10 0	
4000	50	*Sth. Metropolitan*	50 0 0	10 0 0	80 to 82
15000	10	*Surrey Consumers*	10 0 0	10 0 0	15⅞ to 16
10000	10	Do., new	4 0 0	10 0 0	7 to 7½
9000	50	United General . . (Dublin & Limerick)	50 0 0	4 12 0	28 to 30
1000	10	*Victoria Docks* . .			
1500	10	*Wandsworth & Putney*	10 0 0	7 10 0	
1500	10	Do., new shares.		7 10 0	
20000	10	Western (Limited) A shares.	10 0 0	10 0 0	16 to 16½
10000	10	Do., B shares.	5 0 0	10 0 0	8½ to 9
10000	10	Do., C shares.	3 0 0	10 0 0	5½ to 6
20000	10	Do., D shares.	1 0 0		1¼ to 2
8000	5	*West Ham*	5 0 0	7 10 0	6 10 0
6000	5	Do., new shares.	3 0 0	7 10 0	3 18 0
551	10	West London Junction (Lim.) . . .	10 0 0	6 0 0	
520	10	Do., preference .	10 0 0	6 0 0	

Price Current.

CASTINGS.—*Per Ton.*

Average Weight of Cast-iron Gas-pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lb

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle	Wales.	Yorkshire, Derbyshire, and Staffordshire.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Pig Iron, No. 1, G.M.B.	3 17 6	2 17 0	2 15 0	3 5 0	3 15 0
1¼ and 2-inch Socket-pipes	7 10 0	6 0 0	6 15 0	6 15 0	7 10 0
2½ and 3-inch ditto	7 0 0	6 0 0	6 5 0	6 10 0	7 0 0
4 and 5-inch ditto	6 10 0	5 10 0	5 15 0	6 0 0	6 10 0
6 inches and upwards ditto	6 5 0	5 0 0	5 10 0	5 15 0	6 5 0
Retorts, 1st fusion, hot blast	6 0 0	—	5 5 0	5 10 0	6 0 0
Ditto, 2nd ditto, cold ditto	7 0 0	5 15 0	5 15 0	6 0 0	7 0 0
Tank-plates, ¼ thick and above	6 10 0	5 10 0	5 10 0	5 15 0	6 5 0

WROUGHT IRON TUBING,

Subject to 50 per cent. Discount.

	2 in.	1½ in.	1¼ in.	1 in.	¾ in.	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 12 feet—per foot		1 0	0 10	0 7	0 5	0 4½
Ditto ditto, from 6 inches to 18 inches—each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting-pieces, or Long Screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, Springs, and Elbows (wrought iron)	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, ditto	4 6	3 0	2 6	2 0	1 6	1 2
Iron Cocks	17 6	9 6	7 6	4 6	3 3	2 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and Nipples	1 3	0 9	0 8	0 6	0 5	0 4
Plain Sockets	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 2-quart	15 0	14 0	13 6	13 0	12 0	—

GAS COALS.—*Per Ton.*

Newcastle.—Unscreened:—

Brancepeth, Burnhope, East Castle, Haswells, Lanchester's Pelaw, Nettlesworth Primrose, and South Pelaw	6s. 6d.
Dean's Primrose, Felling, North Pelton, Redheugh Main, Walker's Primrose, West Wear, and Whitwell Primrose	6 9
Craghead, Charlaw, Derwent, Edmondsley, Eighton Moor, Hartlepool Pelaw, Holmside, Lambton's Gas, Medomsley, Mickley, New Pelaw, New Pelton, Pelaw Main, Ravensworth, South Moor Pelton, South Leverson, Townley Main, Tyne Main, Washington Hutton, West Pelaw, Wearmouth Hutton, and Witton	7 0
Peareth, Ravensworth Pelaw, Waldridge, West Garesfield, and West Pelton	7 3
Pelton, South Peareth, Stella, Urpeth, and West Leverson	7 6

Scotch Cannel:—

Boghead (at Leith)	45 0
Kirkness, best	23 0
Capeldrae, 1st quality	20 0
Ditto, 2nd ditto	12 6
Lesmahago (at Glasgow)	24 6
Ditto (at Granton)	25 6
Arniston	27 6
Wemyss	20 0
Haywood, Wilsontown (at Granton)	14 0
Pirnie	14 0
Lothian's Cannel (free on board at Leith)	25 0
Myles' Cannel	21 0

FREIGHTS.

Coastwise—Newcastle.—Per Ton:—

Chatham and Rochester	7s. 9d. to 8s. 0d
Cork	10s. 0d. to 10 6
Dover, Folkestone, and Ramsgate	8 0
Dublin	10s. 6d. to 11 0
Exeter Quay	10 6
Ipswich	6 9
London (from Leith)	9 6
London (Pool)	7s. 9d. to 8 0
Lowestoft and Yarmouth	5 6
Portsmouth and Southampton	9 6
Plymouth	9s. 6d. to 10 0
Shoreham	9 0
Whitstable	8 3
Weymouth	10 0

Foreign.—Per Keel:—

Barcelona	24 0
Bordeaux	16 0
Boulogne and Calais	9 10
Cadiz	£17. 0s. to 17 10
Copenhagen	10 10
Genoa	23 0
Hamburg	11 10
Havre de Grace	11 10
Leghorn	23 0
Lisbon	£16. 10s. to 17 0
Rotterdam	11 10
Stettin	10 0
Trieste	20 0
Venice	22 0

SUNDRIES.

Best Natle. Fire-bks., p. 1000,	£2. 10s. to £2 15 0
Cliff's Fire-bks. (at Wortley), p. 1000.	2 15 0
Ingham's ditto (at Wortley), p. 1000.	2 15 0
Fire-clay Retorts, p. ft. run,	5s. 6d. to 0 7 0
Tough Cake Copper, p. ton	96 0 0
English Pig Lead, p. ton	20 15 0
Welsh Bar Iron (in London), p. ton	7 12 6
Foreign Spelter, p. ton	21 10 0
English Block Tin, p. ton	100 0 0
Brass, p. ton	98 0 0
Tarred Rope Yarn, p. cwt.	1 0 0

Advertisements.

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IMPROVED DRY GAS-METERS,

STANDARD GASHOLDERS, AND TESTING APPARATUS.

Extensive experience, in this country and abroad, has proved the superiority of their Improved Dry Gas-Meters, which have come more rapidly into general use than any Meter hitherto manufactured.—The printed Report of the official Inspector of Gas-Meters for the City of Manchester, for the year ending 1863, shows that he tested 5707 *new Dry* Gas-Meters, and only 5 *new Wet* Meters; and that *George Glover and Co.'s Improved Dry Gas-Meters stand highest in point of accuracy*, as shown in the following extract:—

"George Glover and Co., per centage of error on the number tested, 2·116.

Thomas Glover	,,	,,	,,	2·812.
Croll, Rait, and Co.	,,	,,	,,	5·540.
Thomas Fletcher	,,	,,	,,	15·121.
Joseph Boulton	,,	,,	,,	25·000."

Ranelagh Works, Ranelagh Road (near Pimlico Pier), London, S.W.; and 15, Market Street, Manchester.

NOTICE OF REMOVAL.

On and after the 20th of December next the business of

WILLIAM SUGG,

GAS ENGINEER,

will be removed to his New Factory,

VINCENT WORKS, VINCENT STREET,

REGENT STREET, WESTMINSTER.

THE

GAS-METER COMPANY, LIMITED,

(LATE CROLL, RAIT, & CO.,)

Beg to intimate that the printed report of the official inspector of Gas-Meters for the City of Manchester for the year ending **1864** shows the following comparison :—

NEW METERS TESTED.

Of the Gas-Meter Company, Limited . .	Dry . .	1116
	Wet* . .	1292
Total		—— **2408**
Of George Glover and Co.	Dry	383

* The Unvarying Water-Line Gas-Meter, in regard to which the following extract from said report refers :—"The visiting justices will perceive, from a comparison of the tables now appended with those of last year (viz., 1863), *that there has been a large increase in the number of new wet meters tested, owing to the Gas Committee having substituted the wet for the dry in the case of hired meters.*"

Extract from printed report of the said official inspector for the year ending 1862, shows the following comparison :—

Croll, Rait, and Co., per centage of error on the number tested . . 8·671
George Glover and Co. „ „ „ . . 22·727

JOSEPH BOULTON,

PATENT DRY & IMPROVED WET GAS-METER MANUFACTURER,

80, KING'S CROSS ROAD, AND 10½, GREAT PERCY STREET,

CLERKENWELL, LONDON,

Begs respectfully to call the attention of the London and Provincial Gas Companies to an attempt which is being made by Messrs. George Glover and Co., Ranelagh Works, Ranelagh Road, Pimlico, to depreciate his Meter and those of other makers, by the publication of an extract from the Official Report of the Manchester Meter Tester for the year ending 1863, from which they wish it to be understood that the dry meter has obtained so prominent a position in Manchester that the wet meter is entirely excluded, thereby misleading the public; the fact, however, being that in the year 1864, the Gas Committee of that city passed a resolution against dry meters altogether, and have reverted to the exclusive use of wet meters. This proves the assertion as regards the use of dry meters in Manchester, given out by them at the present time, to be inaccurate; to confirm which, as well as to prevent the public from being misled in reference to the meaning of "per centage of error," Joseph Boulton directs attention to the following letter :—

GAS-METER TESTING OFFICE, *Bootle Street, Manchester, September* 16, 1864.

MR. J. BOULTON.

Dear Sir,—I am in receipt of your favour of the 15th inst., calling my attention to a Circular issued by Messrs. George Glover and Co., and based upon returns given in my last Report, 1863, wherein the per centage of error is mentioned. I am exceedingly sorry that those returns should have been used to the prejudice of your interest, or any other maker of meters, by Messrs. George Glover and Co., merely because they stand at the minimum per centage of error. These returns were compiled, by request, for the information of the Justices and Town Council of Manchester only, and not for the purpose of allowing any one maker to advertise by it, to the disadvantage of another.

With regard to your dry meter, I can testify to its being equal to any that are at present in the market for excellence of workmanship and material, and reliability of registration, and this I speak from my own experience of your meter prior to my present appointment, and also from subsequent knowledge as inspector; and I beg to assure you that the per centage of error as shown against your meter, or any other maker, *does not, in my opinion*, reflect in the least upon the merits of such meters as regards their construction, durability, and correct indication, but merely refers to the adjusting of the measuring capacity to the limit of range of 5 per cent., as per Act.

I append to this letter an extract from my last Report, which will convince you that I do not draw the same inference from the results as the firm named. I may here mention that the Gas Committee of this city have again reverted to the exclusive use of wet meters.

I am, dear Sir, yours faithfully,
(Signed) JAMES URQUHART, *Inspector.*

Note.—The per centage of error indicates only the condition of the meters as sent from the works of the maker to the inspector's office for verification and stamping in accordance with the Act. The public purchasing meters, of whatever make, providing they bear the Government stamp have a guarantee that such meters will not register more than 2 per cent. in favour of the seller, or 3 per cent. in favour of the consumer of gas, the extreme difference sanctioned by the Act.

Without detracting from the qualities of any other meter whatever, Joseph Boulton wishes to state the fact, that Mr Daniel Horton, of Liverpool, and Mr. James Urquhart, of Manchester, Official Gas-Meter Testers for those cities, distinctly affirm, that better meters than his, in every respect, are not made by any one in the trade. Joseph Boulton confidently says, that he uses only the best materials of the various kinds in their construction, and pays more for labour in the manufacturing of dry meters than any other maker, so as to secure the most skilled workmen.

September, 1865.

TO GAS-WORK MANAGERS.

WANTED immediately, a Man to take the Working Management of the Gas-Works at Shanklin, Isle of Wight. The whole of the duties will have to be performed by the person appointed, and preference will be given to one who has had the management of similar works.

Wages, 21s. per week, with house, coal, and light free.

Send references, in own handwriting, and state age and number of family, to GEO. BOWER, St. Neots, HUNTS.

OUT-DOOR INSPECTOR WANTED.

AN important Provincial Gas Com- pany is in want of an Out-Door INSPECTOR to take the indices of the consumers meters, and make out the gas, meter, and coke accounts. Age not to exceed 30.

Salary £100 per annum to a competent person.

Applications, with references, to be made by letter only, in the handwriting of the applicant, addressed to Mr. THOMAS G. BARLOW, 42, Parliament Street, LONDON, S.W.

WANTED, to proceed to China immediately, a first-class GAS-FITTER. He must be thoroughly acquainted with the structure of gas-fittings, chandeliers, &c., and also be able to repair dry and wet gas-meters. Preference will be given to a man having a knowledge of plumbing and tin-plate work.

Apply, by letter only, to A. A. CROLL, Esq., 10, Coleman Street, City, LONDON, E.C.

THE Directors of the Croydon Commercial Gas and Coke Company are desirous of receiving TENDERS for the construction of a BRICK TANK, 104 ft. in diameter, on their premises at Waddon, Croydon, drawings and specification of which can be seen at the Company's Offices, Surrey Street, Croydon, between the hours of eleven and four o'clock.

Tenders to be forwarded, under cover, to the Secretary, endorsed "Tender for Tank," before Tuesday, the 21st of November next.

The Directors do not bind themselves to accept the lowest or any tender. By order of the Board,

WILLIAM PURVIS, Secretary.

Croydon, Oct. 27, 1865.

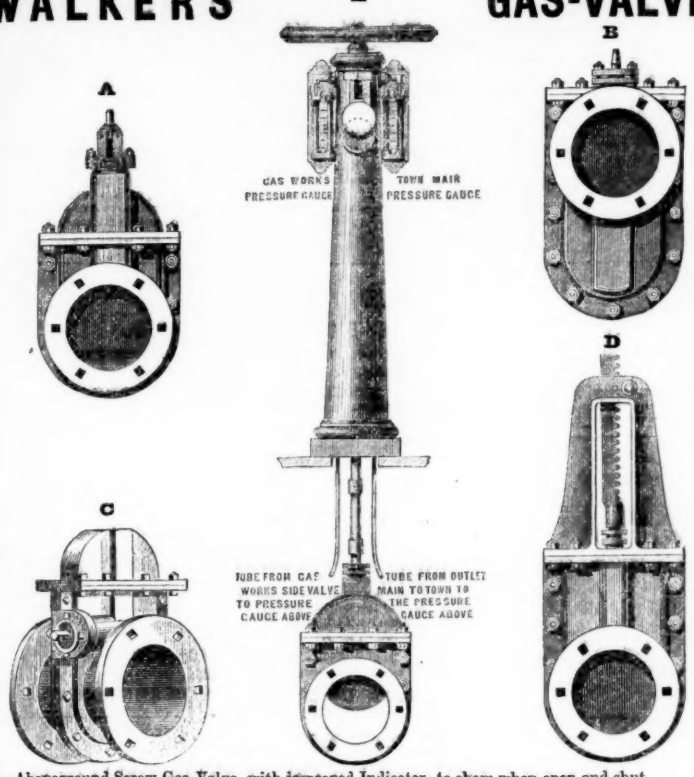
WILLIAM PARKINSON and CO., Cottage Lane, City Road, LONDON, beg to intimate that they have DISCONTINUED to manufacture the Lamp-lighting Rod registered by H. Young, Engineer to the Birmingham and Staffordshire Gaslight Company, having learned that there is a patent in existence for the same article, of a prior date, in favour of John Welsh, Superintendent of Police and Inspector of Lighting, Perth, N.B.

TO GAS COMPANIES AND CONTRACTORS.

TO BE SOLD cheap, the undermen- tioned GAS APPARATUS, all of which has been in use until very recently, and is only disposed of on account of being too small for use on the Company's works :—A 10,000 per hour Exhauster (Anderson's make); a large Wash-Vessel and connexions; 6 Purifiers, 8 ft. square, with 8-in. connexions, all complete, with 18 8-in. valves.

Particulars may be obtained on application to Mr. E. H. THORMAN, Engineer, West Ham Gas-Works, LONDON, E.

WALKERS GAS-VALVES



A—Aboveground Screw Gas-Valve, with improved Indicator, to show when open and shut.
B—Underground Screw Gas-Valve, for shallow Street-Mains, made with or without an Indicator.
C—Internal Rack-Valve, with wrought-iron Pinions and machine-cut Teeth.
D—Ordinary Rack and Pinion-Valve, with strong, undamageable Racks and Pinions—made as shown, or boxed up for Street-Mains.
E—Regulating Indicating Column and Valve, for governing the supply of Gas to the Town.

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8, NEW BROAD STREET, LONDON, E.C.

Mr. Panting having had many years experience in designing and manufacturing gas apparatus, is prepared to advise with Companies and others on the laying out of new, and on the extension or improvement of existing gas-works.
Plans, specifications, and estimates furnished.

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GAS-METER MANUFACTURERS
(Stamped according to the Sale of Gas Act).
STATION-METERS ANY SIZE.
PHOTOMETERS, EXPERIMENTAL METERS, PRESSURE-GAUGES, &c.
Price List on application.
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CONSULTING GAS ENGINEER,
68, KING'S ROAD, READING,

Having had many years experience in the adjustment and regulation of the supply of gas to public lamps, begs to offer his services to Gas Companies, Corporations, or Boards of Health, on reasonable terms.
Contracts taken for laying mains, general repairs, and extension of gas-works.

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LATE
ROBERT BEST,
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Also,
PATENT WELDED IRON TUBES,
For Gas, Steam, Water, and other purposes.
GAS APPARATUS OF EVERY DESCRIPTION.
High-pressure Water-Valves and Cocks, &c., &c.
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Main Laying and Gas-Works erected complete.

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TO GASHOLDER MAKERS, IRON-FOUNDERS, &c.

PARTIES desirous of Tendering for the construction and erection of a Telescopic GASHOLDER, 101 ft. 6 in. diameter and 30 ft. high, in two lifts, with columns, guides, girders, chains, weights, &c., complete, may see the plans and specification at the Company's Office, Monk Bridge, York, on and after the 30th day of October inst., from ten to four o'clock, up to the time of letting.

Tenders will be received at the Company's Office, before ten o'clock, on Thursday, the 23rd day of November next.

Security will be required for the due performance of the contract.

No pledge is given that the lowest or any tender will be accepted. JOSEPH BRADDOCK, Clerk.

York, Oct. 12, 1865.

GAS TAR.

THE Directors of the Wolverhampton Gas Company invite TENDERS for the purchase of their TAR for the term of three years from the 1st of January next, delivered into the contractor's boats, at their Horseley Fields and Stafford Road Works. The price stated to be per ton of 210 gallons.

Payments cash, monthly.

Tenders, addressed to the CHAIRMAN, must be sent on or before the 23rd of November next.

Wolverhampton, Oct. 26, 1865.

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Manufacturer of Clay Retorts, Fire-Bricks, and every description of Fire-Clay Goods.

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Meters of any maker altered and put into complete repair, to meet the requirements of the Sale of Gas Act.

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MR. W. H. BENNETT, having had considerable experience in matters connected with Gas, Water, and Sanitary Improvement, begs to say that he continues to assist Inventors in the perfection of their designs, and to obtain for them PROVISIONAL PROTECTION, whereby their invention may be secured for Six Months; or LETTERS PATENT, which are granted for Fourteen Years.

Patents completed, or proceeded with at any stage, thereby rendering it unnecessary for persons resident in the country to visit London.

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would respectfully call the attention of engineers and managers of gas-works to his Newly Improved GAS-METER, patented 1862 in England, and the principal parts of the Continent.

Price-lists and tenders for gas-meters, experimental station-meters, experimental holders, governors, purifiers, gasholders, pressure-gauges, gas and water fittings, &c., are forwarded on application.

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THE SHALE-FIELD of WEST-FIELD, in the co. of FIFE, containing a seam of shale rich in oil, WILL BE LET for such a number of years as may be agreed on. A rough coal, well suited for decomposing the shale, will be let along with it. It is situated on the lands of Capledrae, well known for their rich gas-coal, which produces the largest quantity of oil of any coal in Scotland, except Boghead.

Apply to the Proprietors, J. and R. AYTOUN, 3, Fettes Row, EDINBURGH.

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Manufactory—Broad Street, Birmingham—Established 1807,
MANUFACTURERS OF GLASS CHANDELIERS, GLASS LUSTRES, TABLE GLASS, &c. &c.
ELEGANT CRYSTAL GLASS CHANDELIERS, for GAS, from £4 upwards
Made from "REGISTERED" DESIGNS), with GLASS BRANCHES, &c.; suitable or DRAWING-ROOMS and BALL-ROOMS. The more extensive use of Gas in private dwellings has induced Messrs. OSLER to direct their particular attention to the manufacture of this class of articles—which, with a view to their general adoption, are offered at very moderate prices. Purchasers can select from a great variety of patterns, to which additions are being constantly made.
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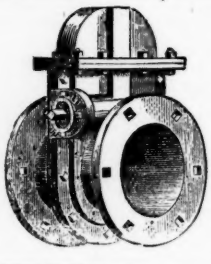

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These Valves are all proved on both sides to 30 lbs. on the square inch before leaving the works, and are always kept in stock.
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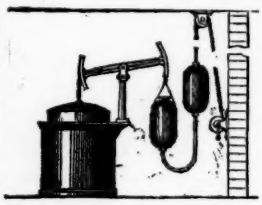

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Retort Mouthpieces, Bolts, Nuts, and every description of Wrought-Iron Work.

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Desire to inform Managers of Gas-Works, Local Boards, and large Consumers of Gas, that the patent
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is now ready for delivery. Also various larger sizes. The Factory Bat's-wing, burning at 18/10ths pressure, shows a steady sheet of flame *eight inches wide* by *three and a half inches deep*. Schedules of consumption for all sizes, proved under various pressures from half-inch to 3-inch (both Union, Jet, and Bat's-wing), on application to
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OLD TUBE AND FITTING WORKS, WALSALL.

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The subscription is 15s. per annum, if paid in advance during the month of January, or 18s. credit, in two sums of 9s. each, in July and January of each year. Post-Office orders must be made payable at the Charing-Cross Money-Order Office, to William H. Bennett, No. 42, Parliament Street, Westminster.

The next number will be published on Tuesday, December 12, and the subsequent numbers on each successive alternate Tuesday.

This JOURNAL has been duly registered at the General Post Office for transmission abroad.

Stamped copies, when forwarded by post, must be folded so as to expose the stamp; they are otherwise liable to the full postage charge for letters.

All Communications to be addressed to the Editor, No. 42, Parliament Street, Westminster; and orders for Advertisements to the Publisher, Mr. W. B. King, No. 11, Bolt Court, Fleet Street.

THE JOURNAL OF GAS LIGHTING,
WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, NOVEMBER 28, 1865.

Notes upon Passing Events.

SIR GEORGE GREY has taken advantage of the discussion in the late House of Commons on Sir William Fraser's motion touching the cleansing and paving the streets of London, and invited the Metropolitan Board to give its ideas upon the subject. What those ideas will be we cannot doubt. The Metropolitan Board has an omnivorous appetite, and a stomach ready to digest any amount of public work. But while it is deliberating, the parishes are up in arms and most indignant, as was to be expected, at finding not only their privileges but their patronage threatened. Of course, a great deal of stock indignation was expended on the centralizing tendencies of the Government. But such vague exhortations have lost their force from constant repetition. The public want to see some order—some regular system in the paving and the cleansing of the whole metropolis. The question at issue is, how can this be best attained? At present there is no system, no regularity, no understanding or means of arriving at an understanding between adjoining parishes. The evils are patent to every passer by, and not to be allayed by wind-bag speeches. The boundaries of parishes are ancient, accidental, and curiously intermixed. But the travelling public pass over in one day the bounds of many parishes without noting them, but are very much annoyed by the chaos of paving and cleansing. The first thing wanted is a plan of street repairs, based on some rational system. The public want the metropolis to be looked at as one whole, in which the work may be done at the best seasons, in the best manner, and in the most convenient lots. At present the work is always going on and never ended. There is one great street at the West-end which is divided between two parishes, is repaired at different seasons, and rejoices in two entirely different kinds of pavement. Of course, this is an extreme instance. A reform might be effected in several different modes. One way would be to divide the metropolis into a few districts for the purposes of cleaning and paving, such districts to be made on principles of engineering convenience alone. Each district might be of sufficient importance to employ and pay for the services of a competent surveyor, and these district surveyors might, on all board days or other needful occasions, be united in council under a surveyor-in-chief, to be agreed on between the City Commissioner of Sewers and the Metropolitan Board. Another plan would be to hand over the whole business to the Metropolitan Board. This would be theoretically simple, but it is questionable whether in practice it would not be found that the Metropolitan Board had enough to do already. There is no pavement in the world which endures so much traffic, requires so much repair, and is kept in better order than that of the City of London. It is always kept as completely repaired as the season will admit. Perhaps the best way of cleansing and repairing the Metropolis would be through a professional Board, selected by the City Corporation and the Metropolitan Board, composed of two engineers and two architects, with a competent staff to whom all the details of the work of the whole metropolis, divided into some four or five districts, might be submitted; each parish paying its quota of the expense found needful. It is absurd to suppose that any number of non-professional vestrymen or Common Councilmen know anything about so purely technical a subject as that of paving and cleansing. The work is well done in the City, because it has become a routine left to the surveyor, with which the Commissioners do not practically interfere. At any rate, of this the parish vestries may make sure—in some way or other, a reform will be effected—by the vestries, or in defiance of them.

The condition of the Corporation of London at the present moment is really pitiable. The governing members are wasting the finest possible opportunities for retaining a dominant position in the metropolis. It is most desirable, for many reasons, that this ancient Corporation should not be reduced to a mere victualling department, by having all real work taken from its hands piecemeal; but that will surely be the case if some active life is not introduced into this obese and inert body. During the last sixty years, the Corporation has talked a great deal and feasted a great deal, but its only obvious creditable work has been the Underground Railway. That was due to the late Charles Pearson; his activity and necessity beat the natural *inertia* of the Common Council. He died, and left as a legacy the fitting of a dead meat market to his railroad. This market the Common Council are floundering about, stopping the way of the railroad. And why? Because with penny wise and pound foolish economy, the Corporation chose to impose on their surveyor—who is an architect and has all the City to look after—all the business of two great engineering works, he not being an engineer, and, if he were, having ten times too much to do. First, the Smithfield Meat Market was offered, with beggarly prizes, to open competition, with a clause excluding the successful competitor from the execution of the work. Next, no one of any strength or experience

competed. Lastly, the plans were handed over to the City architect to cook a plan. And it is no imputation on an over-worked and graceful designer who never did a big thing in his life, to assert that he is quite incapable, even if he had nothing else to do, of carrying out a grand union of a market, a meat warehouse, and a railway-station. Mr. Fowler, the engineer of the Metropolitan, whose office, with a first-rate, highly paid head in each department, would be a model for the City authorities, cannot proceed with his railroad, because the architect has not yet settled the ground plan of the market under which the railroad is to run. This is the answer extracted, after much questioning, at a meeting of the Common Council, and after an indignation meeting of the inhabitants of the market parish, and a deputation headed by Mr. Torrens, M.P. for Finsbury. Mr. Torrens's opposition is not to be despised. He is an able man, and named as a future Under-Secretary for the Home Department; he has a case which speaks to the eyes of every one who passes from Clerkenwell to Smithfield. There is that howling desert of brick arches, only relieved on one side by Charles Pearson's railway; there is the nuisance of old Smithfield, where year after year property worth ten thousand a year lies unused and unrated; and then there is the Holborn valley! The City authorities, after a century of torpor, woke up last session, and, with extraordinary vigour, snatched the execution of the Holborn Viaduct from the Metropolitan Board, by laying before Parliament the outlines of a thoroughly practical and economical plan. For some ninety thousand pounds the nuisance was to be removed, and the whole property round immensely improved; but, this done, our old Common Council friend, Mr. Pennywise, stepped in, and succeeded in placing in the hands of the architect recently elected to act as "surveyor," the execution of the viaduct. Architects are but men, and the gentleman on whom, like Malvolio, "honour was thrust," proceeded to immortalize himself by abandoning the cheap lines which had won the approval of parliamentary committees, and designing what the French call a "monumental structure," regardless of expense, with details in defiance of all engineering experience. When contracts were invited, they came in at about treble the original estimate, and the generous offer of Mr. Myers to reduce his bid by forty thousand pounds, did not much help the puzzled Committee of Five. To retrace their steps, and go back to the original parliamentary plan, was, of course, out of the question—it was not in human nature; the only resource seemed to be to apply once again to Parliament for more money and a further charge on the coal dues. Unfortunately, the ever-active Metropolitan Board was before the Common Council with a scheme for completing the approaches to the Thames Embankment on a truly imperial scale; small therefore are the hopes of the Viaduct Committee. Under severe pressure a motion has been carried in the Common Council for affording the City architect the professional assistance he does not want to receive. Thus we see that the City of London, with two such trump cards in its hands as the great railway-station meat market and the Holborn Viaduct, have twice managed to revoke, and stand a sad chance of losing the rubber to Sir John Thwaites's parliament.

Our old friend, Alnaschar Ellis, is again before the public, and this time as a winner. No doubt he is already calculating the time when his sewage eggs shall have been hatched, and in his dreams has married the Grand Vizier's daughter, or whatever marchioness may happen to fill the same high place in this country. Pertinacity has been rewarded—whether with a white elephant remains to be seen. The sewage of the south side has been conceded to Ellis, and he has now only the trifling task of finding the money to execute his scheme of endless pumping and immeasurable miles of pipes. He is, fortunately for himself, too late for this session of Parliament, and will have the satisfaction of living more than twelve months in the glorious position of a *concessionnaire* of untold millions—on paper. Not satisfied with the sewage of the south side of the metropolis, he proposes to take in all the towns and hamlets down to Gravesend as far as Higham Creek, 30 miles below Gravesend; thence to pump it up to a reservoir on Shorn Hill, 280 feet high; and from that reservoir distribute it over the country, and retail it to the farmers of Kent and Surrey—if they will buy it. With the Metropolitan Board it was Hobson's choice—Ellis or no tender. To imagine that this scheme can ever be carried out, is absurd. If the sewage can be carried to Higham Creek without expense to the Board, the ratepayers will be very fortunate. We shall be surprised if any capital is found for a second scheme of sewage irrigation, until Messrs. Napier and Hope have perfected their first experiment. They are now proceeding with about a thousand acres of land in Essex.

The Suez Canal Company have recently been suffering severely, from misplaced confidence in an unmoneyed contractor. After the last general meeting, shares were showered upon the market, and it was difficult to effect sales at any price. The report exhibited, according to the *Revue Contemporaine*, several instances of the carelessness with which the money business of the company has been managed. For instance, a contract was entered into with a person, who appears to have been a Scotchman, to excavate more than 21 millions of cubic mètres of the canal, "because his prices were "much lower than those of any other contractor," without making any sufficient inquiry into his means and credit. The directors handed over to this Mr. A—— all the materials they possessed on the spot. It was soon found that he could neither pay the manufacturers for the machines he imported, nor the freight of the goods he ordered, nor even the wages of his own workmen. First he made one demand, then another, and finally placed the company in a fix, by stopping work and retaining possession of the company's property. In the end, according to the *Revue Contemporaine*, the directors were obliged to give the Scotchman £8000 to cancel his contract, and restore to them their own plant and material! How fortunate for M. de Lesseps that the system of newspaper correspondence does not exist in France. But, perhaps, he is a Denison in his way, and does not care.

In a number of the same review, in one of three notices of Lord Palmerston, all written in a tone of unmingled admiration for that statesman, we come across the following extraordinary passage:—"When Lord Palmerston signed the "treaty of alliance with France which united a French and "English army on the same field of battle, he was not aware "that it would result in a parallel unfavourable to England. "He did not know, when he laboured so ardently to conclude "a treaty of commerce, that on this pacific battle-field England "would not be more fortunate than in the Crimea. Our "army humiliated the English army just as our manufac-"turers will end by establishing a competition fatal to the "commercial superiority of our neighbours. Lord Palmerston "acted for the good of his country, but excessive confidence "in the superiority of England led him into error; as, how-"ever, this presumption, this placid unshakeable self-confi-"dence and pride are the foundation of the English character, "no one on the other side of the Channel will dream of "reproaching Lord Palmerston with acts which, after all, in "contemporary history will mark the beginning of the decline "of Great Britain!" And yet the same writer in the same article, after noting Lord Palmerston's long active career, says in England, "*il fut 'l'homme nation;'* in France the type "does not exist." "Well supplied with men of more brilliant "and varied talents nearer to genius than Lord Palmerston, "France has the sad peculiarity of Saturn—it devours its "children, and, save in rare exceptions, never allows any man, "however strong and great the glory, of dying in harness "(*debout*). England is a nation of Englishmen; we are a nation "of conquerors and conquered." After that admission, and comparing the revenue and taxation of the two countries, India, Algeria, &c., we may complacently leave the writer and his friends the sad comfort of believing in Britain's future decline and fall. Fortunately for the inhabitants, Great Britain, with a regular army perfected since Crimean experience, a volunteer force of 150,000 men, reduced taxes, and annually increasing revenue, we can, like the naughty girl in profane history, "bear a deal of ruining."

The Chorlton Board of Guardians have been compelled to turn their attention to the neglected condition of their union in respect to sewerage and other sanitary arrangements, by the extraordinary prevalence and fatality of "contagious dis-"orders of a febrile character." As many as 14 were admitted in one day to a temporary hospital, and at one time there were 52 fever patients in this hospital, beside the many treated at their own homes. Fifty-nine deaths from fever were registered in four months. Mr. George Greaves, the able consulting medical officer of the union, in an elaborate

report from which we take these facts, comes to the conclusion that the pest arises from causes in a great degree removable. The cases of fever have chiefly occurred in districts adjoining the waters of the Cornbrook, the Bridgewater Canal, and the Medlock, which together enclose three sides of the area referred to. These waters are stagnant, or nearly stagnant, and receive the greater part of the sewage of the land they pass; they are, in fact, little better than open cesspools. There is also a large cemetery in an unsatisfactory state. Mr. Greaves suggests very obvious remedies: "That ashpits be "more frequently emptied, courts and entries cleaned, their "drainage made efficient, blind courts opened at both ends, "a purer supply of water found for the canal, and the sewage "diverted from the river." These amendments will cost money, but be cheaper than the cost of the paupers and patients created by an annual crop of fevers.

The *Leeds Mercury* has been advocating a grand comprehensive scheme for supplying pure water to the towns of West Yorkshire and East Lancashire, by tapping the Lakes of Hawswater and Ullswater, and thus utilizing a now wasted surplus rainfall. The average rainfall of Great Britain is 36 inches, of the lake district 113 inches, so there is water enough. The question is entirely one of expense. Until some competent engineer has given an idea of the probable cost of bringing the water within reach of the water-wanting populations, all other detailed calculations are a waste of time.

The working men of the present day are fortunate as compared with their ancestors—higher wages, shorter hours, cheaper clothes, better tools, and, not least, the endeavours of great and important persons to amuse them. Mr. Ruskin has been lecturing to a working class institution, with his usual zeal, eloquence, and nonsense. We should like to know what his hearers really thought of him when he congratulated them on the progress of the Thames Embankment, and deplored the railway that was to go under it and convey labouring men, at the lowest possible price, from the suburbs to their work in the City; when he sneered at the use of gas, and recommended hand-work in preference to machine-made cheap articles. Does Mr. Ruskin recommend a working carpenter to employ his time at making a pair of shoes by a home-made rushlight instead of buying a pair from the Northampton factory, or to set his wife to spin wool for a coat instead of the mixture of wool, shoddy, and cotton that he buys without trouble? Really, since the princess who was surprised that people starved when such nice tarts were to be had for sixpence, there has been nothing equal to Mr. Ruskin's political economy. Fortunate man, he has so many friends, as a rich clever man should, that he is able to limit his circle to those within reach of his brougham, and despise the wretches who for business or pleasure travel by railroad or burn gas instead of pure wax.

Mr. Bailey Denton read an excellent paper at the second meeting of the Society of Arts, on the storeage of water for the use of villages. Two dry summers in succession have called attention to the condition of the large population scattered over the country dependent upon wells, pools, and even ditches, which a few weeks only of dry weather seriously affect. It seems that September last was the driest and October the wettest month in Mr. Denton's long and careful records. The quantity of rain allowed to run to waste during the month of October, in the midland and south-eastern counties, had it been stored for the use of next summer, would have alone afforded sufficient provision against a repetition of drought. Mr. Denton proposes to utilize the waters which modern agriculture tells us to remove from land by deep systematic drainage. He confines his plans to villages, and therefore is satisfied with less perfect and cheaper works than a great town can afford. The whole paper is worth studying, but the following extracts embody Mr. Denton's final recommendations:—

If we apply the system of storing drainage water for the supply of villages in summer, we may test the question in its monetary aspect by assuming the average population of rural villages to be 400. If each inhabitant requires 10 gallons of water per diem (a quantity quite sufficient in places where the water-closet system does not wholly prevail) it will require a supply of 480,000 gallons for the summer. This quantity is taken on the assumption that for 120 days, or four months in the year, there will not be a supply from ordinary sources. To secure this net quantity, a considerable allowance must be made for waste by evaporation, and 50 per cent. on the quantity required should be added to meet this loss. A reservoir, or basin, to hold 720,000 gallons will therefore be required, and this quantity of water must be stored.

It requires very little calculation to show that if an acre of land, during the period of discharge, will yield 100,000 gallons, it requires less than 7¼ acres to yield the required quantity for 400 persons, or 12 acres of land where the soil is of the densest character. These numbers of acres would have to be increased where the rainfall is so far below the average that a minimum quantity of ten inches cannot be depended upon during the discharging period. The reservoirs necessary to hold 720,000 gallons would be rather more than 4-10ths of an acre, if the depth were taken at 7½ feet. This extent is too large for covering at a cost moderate enough for village economy, and therefore the probability is that open ponds will take the place of reservoirs, if they could be made in some convenient place above the village, and could be shaded from the sun and protected from the wind. The expense of making the pond, using the earth to embank it, and planting the embankment so as to exclude as much as possible sun and wind, and thereby to reduce evaporation and preserve the purity of the water, would be as follows:—

Excavation and embankment, assuming that the earth thrown out formed a bank round the pond on which trees and shrubs may be planted, 2500 yards at 6d.	£62	10	0
Puddling bottom and slopes, dressing bank and gravelling bottom 6 inches deep on the puddling, and constructing overflow from reservoir	102	10	0
Planting and fencing	30	0	0
Value of land appropriated to the purpose, three-quarters of an acre	45	0	0
Total cost of reservoir	£240	0	0
Iron pipes from reservoir, with stop-cock, well, and brickwork	155	0	0
Four stand-pipes and taps	20	0	0
Total outlay	£415	0	0

Assuming these figures to fairly represent the cost of supplying a village of 400 inhabitants with water, and the number of houses or cottages in the village to be 100, it follows that the cost per person would be £1. 0s. 9d., and the cost per house, £4. 3s. If the cost were charged upon the houses, and the money were borrowed to do the work, it could be repaid by instalments with interest in thirty years at 6¼ per cent., and the annual charge would amount to £26, or a charge upon each house of not quite 5s. 3d. per annum.

The capability of thus supplying villages with water is not conjectural; every day's experience in drainage only confirms the conclusion that there are few villages in which something of the sort might not be devised. In fact, the figures given represent the worst aspect of the suggestion, for nature frequently affords opportunities of collecting the water of drainage without recourse to artificial ponds, in hollows and ready-made receptacles which may be appropriated with advantage.

Of course it is assumed that there are lands above the village which require drainage and would supply the required water, and that the reservoir shall be so much above the village, that by means of iron pipes, with stand-pipes and taps, the water could be delivered down the street, at convenient places, for the use of the poor.

At present legal powers do not exist enabling cottage owners in villages to charge their properties with the cost of water supply. But this question is one of detail only, which will be met when the object is recognized as one worthy of legislation.

Circular to Gas Companies.

THE month of November is generally watched with anxiety by all such companies as carry on their operations with parliamentary powers, as it is the period when notices must be given of any new and competing schemes for which the sanction of Parliament is required. The discontent and the speculative enterprise of the country, after having been pent up for a year, then finds vent, and assumes the form of *Gazette* notices of measures intended to remedy alleged grievances and to supply all recognized public wants—if the Lords and Commons will only please to let them. The *London Gazettes* for November of every year form a bulky volume, and the collected numbers of that publication in November, 1865, promise to make one of the largest size. The notices of the intended applications to Parliament are not yet complete, but as many of our readers will be anxious for early information respecting the projects afloat for the supply of gas, we shall mention some of those that are the most important.

The proposed measures for effecting changes in the supply of gas in the metropolis first claim attention. The special committee appointed by the Court of Common Council have carried out their resolution of applying to Parliament for powers to manufacture and supply gas for public and private purposes within the City and the liberties thereof. The powers they seek to acquire are extensive and abitrary. They comprise, authority to purchase by compulsion or by agreement land in the parish of West Ham, bounded on the south by the river Thames and on the east and west by marshes, whereon to erect works "to manufacture gas and

"the several matters producible from the residual products;" to break up and interfere with streets and other passages, and the sewers, drains, and pipes therein; to lay down pipes, and to manufacture and sell or hire gas-meters and other apparatus; to levy and collect rates, rents, and charges for the supply of gas; to acquire and to hold patent rights; to lay down and maintain trunk mains for the conveyance of gas from the works at West Ham into the City, passing through Bromley, Poplar, Limehouse, Ratcliff, Mile End Old Town, Whitechapel, and terminating at the City boundary in Aldgate; with a branch line commencing at the Commercial Road, near the Stepney railway-station, and terminating near Little Tower Hill; to borrow money for the purposes of the Bill on mortgage, bond, annuity, or otherwise, to apply to those purposes the funds and moneys under their control, and to charge the moneys borrowed on the corporate estates; to apply the profits of the gas-works to the purposes of the Corporation; to extend and apply the Gas-Works Clauses Act and the Metropolis Gas Act, 1860, or wholly or partially to exempt the Corporation from the provisions of those Acts; and "to vary or extinguish any rights and privileges there-"under, or any other Act or Acts, letters patent, charters or "otherwise;" and finally, the Corporation of London seek to obtain power "to vary or extinguish all rights and privileges "interfering with the objects of the Bill; to alter rates, and "vary and extinguish exemptions from rates, and to confer "exemptions from rates; and to make provisions for all mat-"ters necessary or incidental to the objects of the Bill." It may be supposed that the powers applied for by the Corporation are amply sufficient for their purpose; but they have omitted an important one, and its absence will prove fatal to the Bill. They do not ask for power to purchase the mains or works of the companies that now supply the City with gas, and Parliament will never sanction competition between the Corporation and private enterprise when the existing companies have kept strictly within the limits of the power so recently conferred on them by the Metropolis Gas Act. But supposing it to be possible for the Legislature to depart so far from the principles of justice and from all precedent as to give the Corporation all they apply for, at the first attempt to put their powers in operation, they would meet with an almost insurmountable obstacle in the nature of the land they have selected for the site of their works. It is a peaty swamp, altogether unsuited for the erection of heavy buildings, and the difficulty of finding a foundation would oblige them to look elsewhere for a location, and drive them again into Parliament for sanction of their altered plans.

Two other notices of applications for Acts connected with the gas supply of the City, of more practical importance than the preceding—because there is a reasonable prospect of the measures being carried into effect—have for their object the purchase of land by the Chartered Company, at Hackney Wick, for the erection of gas-works to supersede the present works in Brick Lane and in the Curtain Road; and the amalgamation with that company of the City of London Gas Company, which would be followed by the abandonment of the works at Blackfriars. The Chartered Company apply also for power to consolidate all their Acts into one, to dissolve and reincorporate the company, to construct such works as may be necessary to convey gas from Hackney Wick to the district now supplied by them; and, lastly, to authorize the company to raise further sums of money. In the application for an Act to enable the two companies to amalgamate, it is stated that the whole undertaking of the City of London Gas Company is to vest in the Chartered Company, the former to be dissolved and the shareholders to be incorporated with the latter In this proposed amalgamation of the two oldest gas companies in the world, and the consequent removal of the works from the crowded and confined localities of Brick Lane, the Curtain Road, and Blackfriars, we are glad to recognize the carrying out of the suggestions frequently urged in our columns. The City of London Company deserve much commendation for yielding with a good grace to the force of circumstances, and consenting to lose their separate existence by amalgamation with another company, when they have raised themselves, after a hard struggle, from a state of adversity to a highly prosperous condition.

A fourth and very extraordinary notice relating to the supply of gas to the metropolis is still more comprehensive and threatening than that of the Corporation of London. It appears to be the intention of some parties, not yet made known, to apply to Parliament for an Act to amend or repeal the Metropolis Gas Act and all other Acts relating to the supply of gas in the metropolis; to reduce the rate of further supply; and to purchase the existing gas-works and erect others, beyond the radius of five miles from Charing Cross. It is proposed to reduce the maximum price of cannel gas to 4s. 3d. per 1000 feet, and common gas to 3s. 6d. The Metropolitan Board of Works are to be authorized to buy, compulsorily or by agreement, the works of any one or all the companies now established; to borrow money for the purchase, at not more than 5 per cent. interest, and to levy rates for that purpose; and the Bill is to contain a provision that the price to be paid for the gas undertakings by the Board of Works shall be fixed by the Board of Trade, whose decision shall be final. Should the Board of Works not choose to exercise the powers thus to be invested in them, the vestries, district and other parochial Boards, are to be authorized to combine to effect the purchase, and to have all the powers and privileges for so doing that are intended to be conferred by the Bill on the Metropolitan Board of Works. It might be presumed, from the general character of the notice, that the Bill which proposes to confer such important and extraordinary powers on the Board, originated with, and was to be promoted by that body; but at their last meeting, Sir John Thwaites, the chairman, took the opportunity of repudiating all connexion with the project, respecting which they had not even been consulted by the promoters. We are left to gather who those parties are from the reports of the proceedings at a meeting held on Friday evening, the 17th inst., at the offices of Messrs. Noble and Co., of Bridge Street, Westminster, for the purpose of considering the present supply of gas to the metropolis. Of Messrs. Noble and Co., indeed, we know nothing, and the "Post-Office Directory" does not throw any light on the subject, nor are they known as parliamentary agents; but the appearance at the meeting of Mr. Samuel Hughes, "the well-known gas engineer," is an indication of the quarter whence the movement proceeds. Though the parliamentary notice is signed by Messrs. Walmisley, Son, and Co., it may without much doubt be considered as Mr. Hughes's scheme for remedying the alleged grievances of the gas consumers of the metropolis. The whole affair is so preposterous, that it can only be regarded as the ventilation in an official form of Mr. Hughes's notions respecting the manner in which the metropolitan gas companies should be dealt with. The mode of treatment is, however, too extreme even for the *Times* to countenance, for the power proposed to be given to the Board of Trade, to fix finally the price at which the gas companies shall sell their works, is pronounced to be "a con-"dition which, in a form so positive, has little probability of "being sanctioned either by the public or by Parliament." No case has ever been alleged why the property of the metropolitan gas companies should be confiscated, as such a forced sale would amount to; nor has any responsible public body charged them with having exceeded their powers, or failed to comply with the provisions of the Metropolis Gas Act. To reckless declamation and unfounded assertions of hired lecturers at public meetings, the companies very properly pay no attention, but they court parliamentary inquiry into their conduct whenever their good faith to the public is otherwise impugned. The Metropolitan Board of Works have too much regard for the rights of property to sanction anything so unjust as the propositions in the scheme that has been foisted upon them, and at the present time Sir John Thwaites wisely prefers to direct his attention to the substantial improvements of the metropolis, for which there is an unanimous demand, rather than meddle with a speculative improvement that would raise up a host of opponents, and for which no desire has been publicly expressed, except by a small clique of interested agitators who hope to fatten on the credulity of their dupes. The metropolitan ratepayers would hesitate a long time before they consented to burthen themselves with a debt of ten or twelve millions sterling—for that amount would probably be required to carry into effect such a project as suggested in this parliamentary notice—besides extinguishing all prospect of further reductions in the price of gas, by the operation of the Gas-Works Clauses Act. There is not, however, the slightest chance that the Bill of the anonymous promoters for purchasing the gas-works of the metropolis will ever assume the

form of an Act, even should they venture to bring it into Parliament, which does not seem likely. If the Bill were drawn in compliance with the notice, it could not pass the Standing Orders Committee; and should it be so altered as to escape shipwreck at that stage of its progress, the consent of every one of the sixteen companies named must be obtained, under the Wharncliffe Standing Order, before it could pass the House of Lords.

Much as the Metropolis Gas Act has been abused by those who were chiefly instrumental in its enactment, the provisions of that Act for the protection of the public are now coming fully into force, and if not interfered with, its beneficial effects will ere long be appreciated. The reserve-funds of some of the metropolitan companies are completed, the prescribed amount of dividend has been attained, and in many instances, as previously announced, the price of gas has been accordingly reduced. Another announcement of the same kind has just been made by the directors of the Great Central Company, who promise a reduction from 4s. 6d. to 4s. per 1000 feet at Christmas next, and express their belief that by Christmas, 1866, the accounts of the company will show such results that under the provisions of the Metropolis Gas Act, the consumers will be entitled to a further reduction of 6d. per 1000 feet. Were the Corporation of London or the Metropolitan Board of Works to purchase the undertakings of the existing companies, the consumers would have no guarantee that the price of gas would be reduced as the profits increased, while the payment of interest on the money borrowed to make the purchase, and the losses sustained by the erection of new works and the change of management, would for a long time render any reduction of the price impracticable.

In addition to the notices given by the Chartered and City of London Companies for their intended amalgamation, three other metropolitan gas companies—the Imperial, the Equitable, and the London—have given notices of their intention to apply to Parliament for powers to purchase additional lands, to raise additional capital, to alter the nominal amount of the original shares, the times of meetings, &c. The land to be purchased by the Imperial Company for the erection of new works is situated at Bow, having a frontage to Sir George Ducket's canal, and being close to the North London Railway.

Of the notices of application to Parliament for gas Bills from cities and towns beyond the metropolitan districts, the most important are three relating to the gas supply of Dublin. Two of those notices are given by the companies that now supply that city with gas, and the third by a proposed new company. All the notices are, however, so framed as to allow two of the companies to merge into the Dublin Alliance and Consumers Gas Company, and it is understood that terms have been arranged for the amalgamation of the three companies, subject to the sanction of Parliament. The Colchester gas company have been caught napping; for, having no parliamentary powers of their own, and having neglected to give notice of their intention to apply for an Act of Incorporation, a paper consumers company without works has anticipated them, and stepped in with such a notice. There are also notices for the incorporation of competing companies at Worksop; Neath; Britton Ferry; Aldrington, Brighton and Hove; and Chester. The promoters in the latter case are the Flintshire Oil and Cannel Company, Limited; and the principal objects of the proposed Bill are to incorporate the company, and to empower them to make and erect all necessary works for the manufacture of "oil, paraffin, and paraffin light," and to lay down mains, pipes, and other apparatus for the supply of "paraffin "light." The supply of *gas* is not named in the notice, but it is evident that by the term paraffin light is meant the gas obtained from the distillation of cannel coal in the manufacture of paraffin. The notices from joint-stock gas companies are unusually numerous, and among them we perceive the Banbury Gas Company, which narrowly escaped last year from being victimized in the manner that Colchester is now threatened.

Those members of the Birmingham Town Council who were most active in stimulating the attack on the two gas companies, are naturally anxious to make it appear that great advantage has been gained by the large outlay of money in law and parliamentary expenses which they caused to be incurred. A report of the Public Works Committee, presented at a recent meeting of the council, stated that by the introduction of the system of average meter indication a saving had been effected in the public lighting of £1834 in six months, and the committee congratulated the council on so satisfactory a result. The saving thus attributed to the change of system has, however, been produced altogether by reductions in the price of gas, with which the average meter indication has no connexion. The question is very carefully examined in a well-considered article in *Aris's Birmingham Gazette*, which places the matter in its true light. There is a great fallacy, it is observed, in comparing the old contract price of £3. 10s. per lamp with the result of the present system, without taking into consideration the change that has taken place in the price of gas. That contract commenced in 1840, when the price charged to the largest consumers was 6s. 8d. per 1000 feet, and the present price is only 2s. 6d. Assuming as an average between 1840 and 1861, the intermediate period of 1851, when the price of gas was 3s. 6d. per 1000 feet, and taking the annual consumption of each lamp, as calculated, at 17,564 feet—which is believed to be very much below the actual quantity consumed—if the Corporation had been charged by meter instead of by lamp, the cost of gas alone would have been £2. 18s. 5d.; and, adding to that sum 13s. per annum for lighting, extinguishing, cleaning, and repairs, there would have been a total cost for each lamp, after deducting 5 per cent. discount on the gas, of £3. 11s. 6d., or 1s. 6d. more than the charge by contract. Thus, during the whole period of the contract, from 1840 to 1861, had the price been determined by the system now adopted, there would have been a loss to the Corporation of 1s. 6d. per lamp per annum. If the calculation be continued to the present time from the year 1861, when the price was 3s. per 1000 feet, the cost for gas, and lighting, &c., would amount to about £3. 3s. per annum, which price the companies had agreed to accept. It appears, therefore, that the important reduction of about £3600 per annum claimed to have been produced by the exertions of the Public Works Committee, is entirely attributable to the reduction in the price of gas; and, to establish a claim to the approbation of their fellow-townsmen on that account, it would be necessary for them to show that the litigation and parliamentary proceedings, in which a sum of about £18,000 was expended by the council and the gas companies, exercised some influence in lowering the price of gas. That effect has been mainly produced by the operation of the Gas-Works Clauses Act, in limiting the dividends of the companies, and it is probable that the price would have been still lower had it not been for the wasteful expenditure of money by the committee, which has to be replaced at the cost of the public. At the conclusion of the article in the *Birmingham Gazette*, the writer observes: "The business of the Public "Works Committee is generally conducted with great ability, "but it is to be hoped that a wiser and more peaceable policy "will be adopted on all future occasions than has distin-"guished its labours on the subject of gas."

Some members of the Oxford Local Board seem desirous to take the supply of gas into their own hands, by reviving an obsolete power vested in the old Board of Street Commissioners to erect gas-works, or to purchase those of the existing company. The grievance alleged against the gas company is, that they have failed to pay to the Commissioners, or to their successors the Local Board, all surplus profits above 10 per cent., as they were required to do by their Act, passed so long ago as 1818. The gas company instead of doing so have applied the surplus profits to the extension of their works, and to the reduction of the price of gas, which was originally one guinea per 1000 feet, and is now 4s. 6d. This mode of dealing with the surplus was commended by some members of the Board as more beneficial to the public than applying to Parliament for power to increase the capital of the company, or handing the surplus profits to the local authorities. A resolution was, however, passed for the appointment of a committee to consider the steps to be taken for an efficient lighting of the district, and whether it is advisable that the Board should exercise the option of purchasing the existing works. Those members of the Board who advocate entering into competition with the gas company would do well to make themselves acquainted with the proceedings in the Stroud case last session, when the question whether it is better that gas should be supplied by private enterprise or by local authorities was fully considered, and was decided in favour of private enterprise.

Communicated Article.

EXPERIMENTS ON THE ACTION OF THE SULPHIDES OF AMMONIUM UPON THE BISULPHIDE OF CARBON AND SULPHURETTED HYDROCARBONS IN COAL GAS.

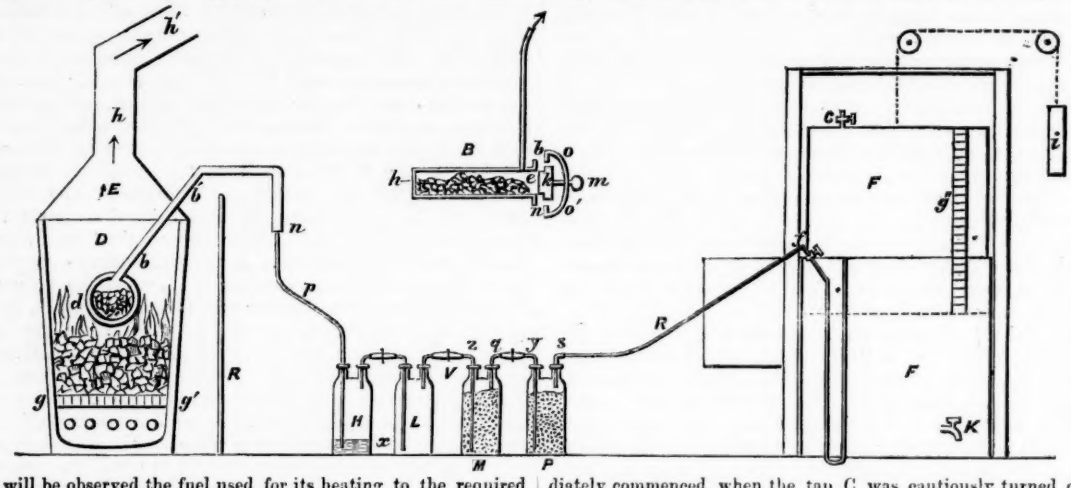
Influence Exercised by "Scrubbing" Coal Gas with Sulphides of Ammonium upon its Illuminating Power.

By Alfred George Anderson, Esq.,
Professor of Chemistry in Queen's College, Birmingham.

(*Concluded from page* 812.)

It was now necessary to distil some coal so as to charge the gasholders A B F, at page 569, with gas for these experiments of control. At page 657 I have described the manner of proceeding when a few cubic feet of gas are required to be prepared for laboratory experiments, and I have made a drawing of the form of apparatus I arrange for such a purpose, which is figured below.

An iron bottle of the shape drawn at B, into which a three-quarter inch length of wrought-iron pipe is screwed at *b*, capable of containing 6000 grains of coal broken to the size of small nuts, is a form of retort which enables us to work a charge of coal upon this scale without any likelihood of inconvenience or failure of result. I have known a retort of this size—that is, of an area allowing the proportionate space to be unoccupied by coal at *e*, while the bulk of 6000 grains are represented at *h*—explode with a report of extraordinary loudness when the "ascension" pipe *b* had an internal diameter of half an inch only instead of three-quarters of an inch. It had become choked with tar, which, from hardening by after carbonization, hermetically sealed the pipe. By the explosion the retort was shattered into many pieces.* When charged the retort is sealed by luting the cap K with soft pieces of asbestos and Stourbridge clay (which when used in concert never permit any leakage), and then firmly jamming it against the neck of the retort by the binding-screw *m*, which grips it by the bow *o o'* at the circular ring projection *b n*. The furnace D, made of black lead, commonly made from the pots of that material used by antimony smelters, has a hole bored at the side *d*, and upon the grate



g g' will be observed the fuel used for its heating to the required temperature. The draught of air through it is produced by the funnel-shaped top of iron plate leading to the chimney-stack through the pipe *h h'*.

The "ascension" pipe, *b b*, is joined at *n* by a perforated sound soft cork with a length of glass tube, *p*, which it will be seen passes inside and dips a short distance beneath the surface of the fluid *x* in the Woolfe's bottle H, which may be of about one pint's capacity. This first Woolfe's vessel is the "hydraulic" main, and the action of that piece of apparatus may be exactly comprehended by watching what goes on inside it during the working of a charge of coal, and which, from its being constructed in this case of glass, is very readily accomplished. It is sometimes convenient to place an iron screen, R, between the furnace and "hydraulic" Woolfe's apparatus H, to effect the double purpose of shielding the experimenter from the heat, and also to prevent this apparatus from becoming too highly heated. I mentioned at page 657, when alluding to the distillation of coal in this small way, that it is advisable to place a second empty Woolfe's bottle next to that acting as the hydraulic main, which, as with the first, may also be of the capacity of one pint. Much tar then remains in that vessel which would otherwise pass on with the current of gas, and cause, it might be, considerable inconvenience. Besides, it is regular and usual to cool the gas before it is allowed to enter the third and fourth Woolfe's bottles M and P, which, when loosely filled with the mixture of hydrated sesquioxide of iron mixed with a little sawdust (which should be thrown into the bottles by the orifices *s q*, after inserting the tubes passing as nearly as possible to the bottoms of these vessels through the corks *z y* previously fitted to them), are wholly effective in purifying the gas entirely from its sulphuretted hydrogen. All the connectors between this series of condensing and purifying vessels are made from glass tubing and perforated corks, and finally joined together (as at *v*) with small india-rubber tubing. The gas lastly passes by the tube R to the stopcock *f*, soldered to the inlet-pipe of the gasholder *f*. Should it be desired to remove the ammonia from it before allowing it to collect there, a single U-tube containing pumice, soaked in a small quantity of one part sulphuric acid and ten of water, placed to intervene about the position between R, between the last purifier P and the gasholder, will entirely effect that end.

Two charges of "Energlyn" coal, which was selected as "pyritical" as could be found, were "worked off" with this combination of apparatus; and so soon as the gasholder F became full, its gas was transferred from it to the large gasholder A (page 569), by joining the tap G with the stop C in gasholder A (which had been previously completely filled with water), and a few weights were placed upon the top of the gasholder F; the stop-cock G was turned on, and the transfer of gas from the vessel F to A immediately commenced, when the tap C was cautiously turned open, this replacing the water, which by its own weight then flowed out at the openings D *e*. When the whole of the gas had been by this method removed from gasholder F to gasholder A, the stop-cocks G and C were shut off, and a second charge of coal worked off in the same way as the preceding one, and the process of transfer to the first portion of gas stored in the holder A repeated until this latter vessel was quite full of gas. Then a third charge was introduced into the retort, and its gas a third time collected in the gasometer F, as evolved; after which it was in turn removed to the gasholder B, by making a connexion from the stop-cock C' to the tap G, after the gasholder B had been perfectly filled with water, and then allowing the water to run from it as usual after opening the stop-cocks G and C'. The most expeditious manner of filling the gasholders A and B with water is to stop the outlets D D' with corks, and run water from the tap of the supply-tank H' by a flexible tube into the openings C C'. Thus a volume of gas, sufficient for the experiments it was proposed to make, was obtained, but it was imperative that the gas of both holders A and B should be perfectly uniform in composition by some operation to ensure complete admixture before performing these examinations. To arrive at this end, the water-supply tap H' was connected to the inlets D D', these inlets being of course at the time beneath the surface of the water-line *e'' e e'*. This was readily done by means of a three-way outlet piece, one orifice being joined to the tap, and the other two respectively to the inlets D D', taking care to completely fill the tubing with water by turning on the tap H' before making the junction to the gasholders. Then the tap C of the gasholder A was attached to the inlet *f* of the gasholder F (perfectly submerged in the water of the tank F') by a length of gutta-percha tubing having a T-piece fastened into this run of pipe just over the tap C', which was then joined to this T. When compression was applied to the gas contained in the gasholders by permitting the water from the tap H to pass into their interiors, by turning on the stopcocks C C', a flow of gas

* This is only one of several other risks from accidents of this sort to which the experimenter with gas is often liable. I will mention another which occurred to me some time since, because it may serve to put others on their guard against the too frequent absence of mind so generally produced by the absorbing attention excited during the performance of an interesting experiment in chemistry. Whilst burning a measured quantity of gas with a Leslie's burner with the apparatus described by Dr. Letheby, the door of the laboratory having been suddenly closed caused the flame, as it frequently will, to be extinguished. Not noticing this extinction of the burner for a short time, and finding, when I had done so, that the trumpet-tube was still pretty warm—indicating that the gas had been but for a very short time put out—I removed the ammonia bottle and funnel, relighted the Leslie burner, and replaced it in its proper position for the continuance of the process, under the trumpet-tube. The moment I did so an explosion of a fearful kind ensued. The trumpet-tube and condensers were literally pulverized by its intensity, scarcely a fragment being discoverable about the laboratory afterwards. At the instant of the explosion, although my face was within fifteen inches of the apparatus, and a friend who had entered the laboratory just before was almost as close to it, neither of us were in any way cut or injured—an escape which has always caused us both much wonderment whenever we have since alluded to the subject.

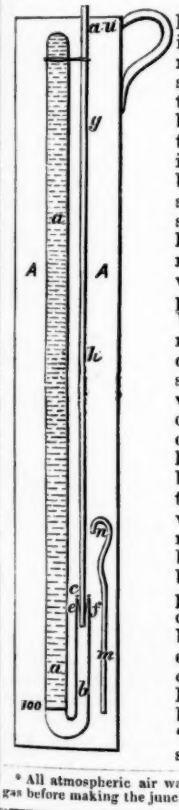
from both of them was determined into the gasometer F.* At length, when this gasometer was quite filled, the taps C C′ were turned off, and the water-supply tube joined to D was removed from that orifice. Then the gas in the vessel F was returned into A by a gutta-percha tube leading from the stop-cock G to C with the customary precautions, and opening the tap C, &c. Thus, the gasholder A was again filled with gas, and what remained in B after that transfer was forced into the gasometer F by connecting a tube to C′, with after junction with *f*, and applying pressure as before to the gaseous contents of B by letting in water from H′ at the opening D′. By this means the vessel B was completely filled with water, and its gas so replaced was driven into F. C and C′ were next joined together, and also H′ and D, air being of course expelled first from the gutta-percha connecting-tube joining H′ and D by filling it with water, and the gas then being under pressure in A was made to expel all atmospheric air from the pipe leading from C to C′ by suddenly turning on the stop-cock C before making the final junction to C′. Thus, whilst water flowed in at D, water poured out at D′, by a careful regulation of the taps H′, C, and C′, until the final result was, that B in turn became filled with gas from the inside of A, whilst A became filled with water to the amount of the capacity just before occupied by the gas. This operation being concluded, G was again joined to C after weighting F moderately, and the expulsion of the air from the connexion-tube, and the passage of the gas in F again effected to A by the outflow of water from D, with the consequent replacement by the gas of F.

These operations, rendered necessary from the absence of gasholders of a capacity which would be so large as to be awkward in use for laboratory manipulation, are soon performed when a good pressure of water can be commanded, and effects admixture far more rapidly than can be attained by the action of diffusion. The gas of A and B would diffuse with each other, as is well understood, through a connexion-tube joining C and C′; but such means if employed would be extremely tedious, and would require to be continued over a considerable interval.

After repeating these operations of transfer from gasholder to gasholder until complete uniformity in the nature of the gas was ensured, about 2½ feet was collected in the gasholder F for a determination of its illuminating power.

Before making this examination of its illuminating power, to make quite sure that the gas in each of the gasholders was of a perfectly similar character of composition, it was determined to ascertain the proportion of carbonic acid and hydrocarbons in the gas of each vessel.

I shall have frequent occasion, in describing the experiments I have made upon this sulphur question, to refer to the employment of the bromine operation, and as I have improved the means of manipulating with this apparatus so that it is not difficult to obtain results of complete accuracy, I shall now proceed to describe how I proceed when I use this method of examination.



The tube should not exceed 23 inches in length, or it is too clumsy for ready use. Its inside diameter measurement should be not more than five-eighths of an inch at *a a*. The short upturned limb *b* must be of such a length that when the greatest absorption required by the operator has raised the water inside the tube *a* to the maximum, the corresponding level can be restored (when necessary, by pouring water into the oricce) in the short limb *b*. The diameter of the tube at *b* should be about, or somewhat less than half an inch, and the upper part must be nicely lipped and rounded at *e*, so that it will be closed air-tight by a good cork, or the perforated cork with tube fitted into it *f g h*. With gases whose absorption by bromine does not exceed 12 per cent., if the short limb *b* is constructed 3¾ inches in length, it will be sufficient. When of that length it answers well for the examination of ordinary coal gas, of 3 or 4 per cent. condensation; for if the column of fluid in *b* at any time exceeds in height the water-level of the tube *a*, it can be lifted out to the exact required level by the use of the piece of capillary glass tube *m*, which is joined to a short piece of india-rubber tube *n*. If the part of this tube *m* be immersed in a column of water in *b*, it becomes filled to the same level; and by pinching the flexible tube *n*, when it is withdrawn, the water it contains is kept within it by the pressure of the atmosphere. Thus the exact necessary level may be adjusted as required, and by the employment of the long tube *g h*, when the levels of the fluids both in *a* and *b* are adjusted, the several "readings," which it is absolutely necessary should be made at the exact temperature of the water in which the tube is from time to time sunk contained in the vessel A A, may be promptly made without the necessity of taking out upon every occasion the water, which would else flow, when the tube was sunk in the vessel A A, into the short limb *b*.

In reading off, I raise the tube completely out of the little water-tank A A, by attaching a piece of string to the upper part of the tube running over a pulley with a counter-balance weight, so as to raise the tube to the required height, and support it there. The tube in this way is always maintained in a truly vertical position, and no error can occur from a reading being taken with the tube held in a position varying from the plumb-line of direction. The instant the tube is brought out of the water the reading should be made by a telescope from a distance of a few feet, in lieu of which a magnifier may be employed if the greatest expedition be observed.

If this tube be graduated into 1000 parts, readings to one-thousandth part may be made with perfect ease.* The graduated tube was now filled with water, and some gas from gasholder A was passed, by the insertion of a small flexible tube, up through the water into the tube. The number of volumes of gas thus collected in the graduated tube numbered 99·6. They were reduced to 95·9 after the agitation with bromine and the subsequent addition of the solution of potassa. Therefore this determination shows an actual condensation of 3·71 per cent. The experiment repeated in an exactly similar way with the gas taken for the purpose from F gave:—Number of volumes of gas before the treatment with bromine and potash, 98·8 volumes; after, 95·1; loss of volumes= 3·74 per cent. Hence it may be properly assumed that complete mixing had been effected, and that the gas of the holders A and F were identical.

The gasholder F was in the next place put in connexion with the Argand burner of the photometer, and every preparation made to measure its illuminating power with the greatest possible care. This is given below, together with the illuminating power of the remaining portion of the gas (in gasholder A) which was submitted to the "scrubbing" treatment in the way now to be described.

The five U-tubes of pumice were charged with the amount of ammoniacal liquor of the Taunton Gas-Works, which had been used there over and over again in their scrubber, just necessary to produce the greatest amount of agitation with the gas as it was propelled through the series of tubes. The specific gravity of this Taunton ammoniacal liquor at 60° was 1·042, and, as before remarked, in all respects it resembled the solution of sulphide of ammonium as usually sold, with a marked hydrocarbon odour. The specific gravity of the solution of sulphide of ammonium used in the experiments made to ascertain what power it developed as an absorber of bisulphide of carbon, &c., detailed at pages 568 and 657, was lower—being only (at 60°) 1·034. To cause the current of gas to be steadily "scrubbed" in the five U-tubes H, the gas as before was compressed in the gasholder A, by making the water flow from the tap H in at the opening D, and a very moderate rate of transit preserved until sufficient was accumulated in the gasholder F for a trial of its illuminating power.

Table showing the respective Illuminating Powers of Gas with and without "Scrubbing" with the Ammoniacal Liquor of the Taunton Gas-Works.

Experiments.	Candle's Consumption.	Rate of Candle's consumption per hour.	Whether "Scrubbed" or not.	Average of Readings.	Illuminatng. Power calculated to 2 gr. pr min.
A	Burned 40 gr. in 19 m. 10 s.	125·2 gr.	No.	12·30	12·83
B	Burned 43 gr. in 19 m. 45 s.	130·6 gr.	Yes.	11·61	12·63

As some gas still remained in the gasholders A and F, after making these two examinations, that in gasholder A was finally conveyed through the "scrubbing" U-tube series into the gasholder F, and one more trial of its illuminating power made; the results of the examination being tabulated underneath:—

Another trial of Illuminating Power of the same Gas as that examined in last table.

Experiment.	Candle's Consumption.	Rate of Candle's consumption per hour.	Whether "Scrubbed" or not.	Average of Readings.	Illuminatng. Power calculated to 2 gr. pr min.
C	Burned 42 gr.* in 20 m. 15 s.	123·9 gr.	Yes.	12·30	12·75

In the following experiments made for confirmation of the above results, besides taking the respective illuminating powers of the "scrubbed" and "unscrubbed" gas, the proportions of hydrocarbons condensable by bromine, and that of carbonic acid, were ascertained with every precaution, so as to check, if possible, the determinations of illuminating power obtained by the photometer.

The largest gasholder, A, was then filled with gas of Staveley

* All atmospheric air was expelled from this length of tube by a stream of the gas before making the junction to the inlet *f*.

* In taking coal gas for examination by this tube, the dry tube should be filled with it by displacing the atmospheric air with the gas to be examined. This is done by passing a small india-rubber tube from which the gas is flowing down the short limb *b* into the part *a*, and allowing at least five minutes (with 12 or 15/10ths of pressure) for its inflow, to ensure expulsion of all traces of air. To fill the tube with water and then pass in the gas, might, by probably absorbing some of its constituents, lead to serious error, and this should never be done unless the supply of gas to be examined is so small that the waste consequent upon the use of the other proper method of filling the tube cannot be allowed.

coal, distilled as described, and finally intermixed as before, with the third distillation product collected in gasholder A.

To commence with: the identity of the gas of gasholders A and F was looked to by the determination of the volumes of gas reduced by bromine. In these trials the bromine tube was, as before, filled with water, through which the gas was passed up into its interior.

Gas in gasholder A.—Vols. of gas taken to be treated with bromine and potassa, 99·4 : after, 93·7 = 5·73 per cent.

Gas in gasholder F.—Vols. of gas measured before the bromine treatment, 98·6 : after, 93·0 = 5·67 per cent.

2nd trial of gasholder F.—Volumes agitated with bromine, 99·2: after 93·3: condensation per cent. = 5·94.

Potassa solution alone absorbed of 99·8 volumes, 2·4 volumes, leaving 97·4 volumes. This is, in round numbers, equal to 2·4 per cent. of carbonic acid.

Now the mean of 5·67, 5·73, and 5·94, the three determinations of the matters of the gas removable by the bromine and potassa, is 5·78 per cent.; nearly agreeing with the second analysis.

Then from	5·78
Deducting the carbonic acid	2·40
	3·38

is obtained as the true per centage of condensable hydrocarbons. Next followed the determination of the illuminating power of the gas in gasholder A. On account of the slight variation in the above bromine condensations of the gas of the two gasholders, it was preferred to use the gas of holder A, as it contained sufficient for the purpose of obtaining two trials of photogenic power, provided no obstacle to the first estimation of illuminating power in one of the two quantities would present itself, which will sometimes arise and prevent the satisfactory conclusion of an experiment when only two or three feet of gas are at command for use. Hence I have always been careful in these experiments to go to the trouble of providing a third quantity of gas in reserve in case of a mischance in this way. Therefore the gas of F was transferred to B, and half of the gas in A was passed into F, and its illuminating power taken. The conclusions arrived at in this experiment are placed in juxtaposition lower down, together with the corresponding results obtained with the remaining half of the gas stored in gasholder A, which was subsequently passed through the "scrubbing" tubes.

Before, however, taking the illuminating power of this second quantity of "scrubbed" gas, which was now ready for that trial in gasholder F, the proportions of hydrocarbons and carbonic acid in it were first ascertained.

For this end, precisely the same method of filling the bromine tube was adopted, and three determinations by the bromine agitations were made—

1. Vols. of gas before = 99·0 : after, 93·8 = 5·25 per cent. of condensation.
2. Vols. of gas before = 100·0 : after, 94·9 = 5·10 per cent. of condensation.
3. Vols. of gas before = 99·4 : after, 94·4 = 5·03 per cent of condensation.

The proportion removed by solution of potassa, was—

Before =98·6 : after, 97·2 : = 1·41 per cent.†

Then the mean of 5·25 vols., 5·10, and 5·03 is 5·12 per cent.

Then from	5·12
Take the carbonic acid	1·41
	3·71 per cent.

is the exact quantity of hydrocarbons which were removed by the bromine process.

The illuminating powers of the "unscrubbed" and "scrubbed" gas, whose respective proportions of condensable hydrocarbons and carbonic acid we are thus in possession of, has now high interest; the arrangement of these in the tabulated shape to facilitate comparison shall be deferred, however, for a very short time until the concluding experiment has been described.

The gas in the vessel B was now caused to flow back through the five U-tube "scrubbers," which were charged with fresh ammoniacal liquor of the Taunton works, into the gasholder F. When 2½ feet had been transferred there, this quantity was burned in the same apparatus employed as described at page 658, the condensed liquor concentrated, and treated by a current of chlorine, and the sulphuric acid precipitated, washed, dried, and weighed as usual—1·09 gr. of sulphate of barium from this 2½ cubic feet, which is equal to 5·98 grains of sulphur in 100 feet, were thus obtained. As no more gas remained wherewith to make a determination of the amount of sulphur existing in the gas in the "unscrubbed" state, we cannot institute any comparison otherwise than by taking another experiment to guide our judgment. The experiment A at page 570 offers the greatest analogy to the case of sulphur determination just given. Upon reference it will be found that it was then ascertained that 14·39 grains of sulphur per 100 feet became reduced to 6·59 by the action of the scrubbing treatment, equivalent to a removal of 54·20 per cent. of the sulphur of the gas.

It is, nevertheless, very certain that far more would be accomplished towards the removal of the sulphur of the gas in the experiment in which the ammoniacal liquor of Taunton was used in the U "scrubbers;" for, from the fact that the action is more complete when the sulphide is of the higher density, the employment of a sulphide of specific gravity 1·042 in the place of one with a quantiy of 1·034 would obviously result in the retention of an increased amount of bisulphide of carbon, &c., there.*

Table showing the Illuminating Power, per cent. proportion of Hydrocarbons and Carbonic Acid, and quantity of Sulphur in a volume of Gas, one half of which was "scrubbed" with the Ammoniacal Liquor of the Taunton Gas-Works (specific gravity 1·042), and the remaining half not having been "scrubbed" at all.

Experiments.	Proportion of Hydrocarbons per Cent. in Volumes.	Carbonic Acid per Ct. in Volumes.	Quantity of Sulphur per 100 Cubic Feet.	Whether "Scrubbed" or not.	Average of Readings upon Photometer.	Quantity of Candle Burned in Minutes and Seconds.	Rate of Consumption of Candle per Hour.	Illuminating Power, calculated to 2 Grs. per Minute's Consumption.
A	3·38	2·40	Not determnd.	Not	11·75	43 grs. in 21m 10s.	121·9 grs.	11·93 candles.
B	3·71	1·41	5·98 grs.	Yes	12·81	39 grs. in 19m 50s.	118·0 grs.	12·59 candles.

NOTE.—It is proper to assume, by a comparison between the action of the "scrubber" tubes in these experiments, and that of page 570 marked A, that the proportion of sulphur was here reduced exceeding the quantity 54⅘ths per cent. of the actual amount contained in the same gas "unscrubbed."

These results show an increase as it would appear caused by the action of the "scrubbing" operation in two particulars, the reasons for which are not obvious. Thus the augmentation in per cent. proportions of hydrocarbons by "scrubbing," as compared with the normal state of the gas, is 0·33 per cent., whilst the addition to the illuminating power is 0·66 candle. At the same time the "unscrubbed" gas contained 0·99 per cent. more carbonic acid than the "scrubbed" gas did. It is useless to attempt to contest the fact that the increase of illuminating power, or of the hydrocarbons, as so completely corroborated by the increase in the proportion of these hydrocarbons, is not to be wholly explained by the removal of the 0·99 per cent. of carbonic acid, which, it is clear, had been withdrawn in some way by the "scrubbing" materials, but which is said to much injure illuminating power when present in coal gas in small proportion. I need hardly, I believe, point out that this result is certainly, to some extent, confirmatory of Mr. Fisher's experiments at Taunton.

To sum up the results of these researches upon the effects caused upon the sulphuretted compounds and the illuminating power of coal gas when "scrubbing" with ammoniacal liquor is practised, it follows from my experiments upon the large scale at the Taunton works—

1. That in the experiments conducted at Taunton Gas-Works when the sulphur was reduced by "scrubbing" from the proportion of 19·8 grains to 12·92 per 100 feet, the illuminating power of the gas so treated underwent no deterioration whatever. Further experiments upon this point also made at those works, with all the precautions which such operations upon the large scale would admit of, contribute very much to further show that so far from any injury being done when gas is so treated, on the contrary, it appears that its illuminating power is actually increased.
2. That the results obtained at Taunton Gas-Works are confirmed by other experiments in which, whilst it was found that over 50 per cent. of the sulphur in the form of bisulphide of carbon was removed by "scrubbing" with ammoniacal liquor, the illuminating power of the gas became somewhat increased.

We must wait for a future more satisfactory explanation of this improvement in photogenic power. It can hardly be ascribed to an increase produced by the partial retention of the sulphur, which in burning into sulphurous acid in a gas-flame always produces some lowering of its brilliancy.

Correspondence.

THE NINE ELMS EXPLOSION.

SIR,—In the course of the excellent article in the last JOURNAL on the lamentable explosion at the London Gas Company's works, it is stated that "there are three ways by which gas may escape from governors as at present constructed. In the first place, by the detachment of the internal cone from the top of the gas-

* In these three estimations of illuminating powers one candle only was used as the standard. It was weighed whilst burning upon the balance-pan, after the method which has been described some time since in the columns of this JOURNAL. This one piece of candle only was employed in all three of the determinations.

† This was confirmed by a second experiment made a few hours afterwards: before, 99·6 : after, 98·2 : = 1·40 per cent.

* Pieces of coal containing the most "pyrites" have been always selected for charging the retort in all my experiments upon this sulphur question in laboratory experiments.

holder, owing to the breaking of the link by which it is suspended, whereby the counterbalance weight would raise the gasholder out of the water. In the second place, the gas may escape from want of water in the tank; or, thirdly, by the accidental tilting or upsetting of the bell of the governor;" and a description is given of the plans that are being adopted by several engineers for the prevention of such an occurrence in future, by enclosing the governor in a jacket or case, to prevent the free escape of gas into the room in which it is fixed, in the event of any of these mishaps taking place.

Now it seems to me that none of these expedients will be effectual in securing the desired end, and, to say nothing of the unsightly appearance the hood or cover is likely to present, will be objectionable in more ways than one. In the first place, as there must be a vent through the cover to enable the holder to rise and fall freely, there will still be the liability of an escape into the room; and although, I suppose, the vent need be but small, the gas—should any of these accidents happen—would issue through it with great velocity, and might so escape in a dangerous volume before being observed. And again, the liability of the gas escaping in consequence of the lute being short of water will be greatly increased, as the water will be out of sight. To ascertain the level of the lute will require the opening of an overflow-cock, whereas with an open governor the height of the water can not only be seen, but, what is of more importance, *the governor cannot be worked without its being constantly seen.* Indeed, when it is considered how extremely rare an accident in a gas-work is attributable to the want of water in an open lute, and that it only *can* occur from such a cause through the most culpable negligence, I think it may be taken for granted that enclosing the governor as a precaution against such an improbable contingency as that is not only unnecessary, but will be likely to exemplify the adage, "out of sight out of mind," and so engender the very evil it is intended to prevent.

If, therefore, the remedy in this case will be as bad or worse than the disease, I am sure it is altogether unnecessary for the avoidance of the other two possible accidents noticed—viz., the tilting of the holder, and breaking off of the cone. In both cases, perfect security is attainable in a much simpler way than that proposed. The former of these mishaps can only occur to a governor having the bell suspended from the crown without any framing, and with a tank so large as to allow of a good deal of play to the bell. Now, the rational thing in that case seems to me to be to fix a suitable framing for the holder to work in. With a proper guide-framing, the tilting of a holder—the cause of the late deplorable accident—is an impossibility. And to make the jerking of the holder out of the water, by the accidental snapping asunder of the connecting-link, or cup and ball of the cone, equally impossible, it is only necessary to make provision in the framing to prevent the holder from rising too far out of the tank. This is easily done in a variety of ways—by having the cross-head of the frame low enough to stop the holder, to fix snugs or stops on any convenient part of the framing, or to prevent the counterbalance weight descending too far.

It will be thus seen that when a governor is properly framed, the holder or bell can neither rise too far out of the tank nor can it be tilted; and that therefore the only remaining contingency is the blowing of the lute, through the water being allowed to get too low, and which need never occur if but ordinary care be taken to prevent it. But indeed this is no more likely to occur to a governor than it is to purifiers or any other apparatus having a water-lute. Enclosing the governor, therefore, and leaving purifiers open, especially where they are in a house, seems a good deal like straining at a gnat and swallowing a camel.

E. S. CATHELS.

Gas-Works, Shrewsbury, Nov. 21, 1865.

SIR,—In the article which appeared in your last impression upon the recent lamentable explosion at the works of the London Gas Company, Nine Elms, reference was made to certain conditions under which gas can escape from governors as at present constructed. These conditions are—1, the dropping of the cone; 2, loss of water; and, 3, tilting.

As an unusual degree of interest attaches at the present time to any question relating to the safety of the apparatus employed in gas-works, will you permit me to direct attention, through your columns, to the action of governors under these circumstances whose holders are balanced by an air-vessel, with the view of ascertaining how far they may be made practically safe.

1. Suppose the cone to be detached from the holder. Deprived of a portion of its weight, the holder will of itself rise until a fresh balance is secured; but higher it cannot go, unless forced upwards by the inlet pressure. The amount of resistance which it is capable of offering is easily ascertained. Let W equal the weight in lbs. of the holder, less the cone, and w the weight, also in lbs., required on its surface to give one inch pressure. Then $\frac{W}{w}$ = the pressure in inches which will be required to lift it up to the surface of the water. If this be slightly in excess of the inlet pressure, it is evident that no escape of gas can take place.

2. Loss of water. As the holder is capable of supporting itself in the water under the ordinary pressure of the atmosphere, it follows that the only effect produced by raising or lowering the water level is to alter the relative positions of the cone and the inlet, and thus to interfere with the correct action of the governor. If too much water be in the tank, the gas will be shut off too quickly; if too little, it can with difficulty be shut off at all. But in neither case can the gas escape.

3. Tilting. It seems clear that the more you increase the seal, so much the more must the holder be tilted before the gas can escape. Thus, a holder having a minimum seal of 20 inches must be more secure in this respect than one having a minimum of only 10. The adoption of the air-vessel guarantees an amount of seal, varying, I believe, according to the size of the governor, from 12 to 30 inches.

I think it is clear, from a consideration of the above, that a holder constructed on this principle can be made so as to prevent the escape of gas under the circumstances indicated. Let it be of sufficient weight (exclusive of the cone) to resist a pressure slightly in excess of that given by the gasholder with which it is in communication; and you have a governor acting independently of any external appliances, which are at any time liable to get out of order, of which it would be difficult to say how far it is wanting in perfect security under ordinary circumstances.

Nov. 22, 1865. AIR-VESSEL.

SIR,—The scientific evidence given at the inquest on the bodies of the unfortunate men killed by the explosion in the meter-house of the London Gas-Works, on the 31st ult., will no doubt have considerable influence in allaying the fears excited by the absurd reports published by the several daily papers. It is, however, to be regretted that other evidence was not taken, as Dr. Letheby's statement relating to the disruption of the gasholders is not very clear, owing, no doubt, to the fact of his not being an engineer.

Dr. Letheby states (I quote the evidence as reported in your JOURNAL of the 14th inst.), in reference to gasholder No. 1—"The gasholder had been bodily moved, as if by a powerful pushing force, from south to north—that is, from the meter-house towards the main road. . . . In fact, the holder had been pushed with so much force against the columns on the northernmost side, that it had broken the rollers, or driven them into the iron plates of the holder to the depth of several inches. . . . At the opposite or southern side, next the meter-house, the iron plates which formed the crown of the holder were torn through and folded over, as if from the action of a very local *internal force.* . . . Again, at the nearest point to the meter-house, and resting on the upper edge of the lower lift of the gasholder, there was a large piece of the sheet-iron plates from the side of the upper lift of the holder. This had evidently been torn off from the side by the descent of the holder after the gas had escaped . . . and that it must have been displaced by a force *acting from without.*" And, farther on, he states "that the explosive force radiated in all directions, and, acting on the nearest gasholder . . . drove *in* the side of the holder, and then moved onward in a continuous line through the crown, thereby throwing up and turning over the sheet-iron plates which formed the top of the holder." The italics are my own.

Now, if the explosive force had acted in the way Dr. Letheby states, the side of the gasholder would have been forced *inwards*, but the displaced sheets would not have been torn off by the descent of the holder.

The doctor's statements may, however, be perfectly reconciled by assuming that gas or other explosions, when occurring in ordinary buildings, usually produce their greatest effect upwards, the surrounding walls offering considerably more resistance than the floors and roof (the exception being where the openings for doors and windows are very large in proportion to the enclosed space), and thus a violent displacement of the superincumbent atmospheric pressure occurs, by which a partial vacuum is produced in its immediate neighbourhood.

The effect of this in the present instance was an instantaneous expansion of the confined gases, with an oblique action on the gasholder, causing it to become fixed between the guides, and, in consequence, a disruption of the plates on that side nearest to the point of explosion; the farther gasholder being affected in a similar manner, but to a less degree in proportion to its distance.

By this assumption, the forcing *outwards* of the top and side of the gasholder is readily explained, and also the tearing off of the latter by the descent of the holder. CHAS. PANTING.

8, *New Broad Street, E.C., Nov.* 22, 1865.

SIR,—With reference to your remarks on the late accident at the London Gas-Works, having for some years discarded the use of governors having an air-vessel and centre guide, not finding them sufficiently delicate in action for my requirements, I have used the system of a balanced beam with knife-edged bearings. These I found so delicate in action that in some cases they gave rise to new inconveniences which had to be counteracted. One was, that in suddenly opening the valves of a heavy gasholder, when a lighter one had been working, or a light one after a heavy one, at the moment of changing there was a tendency to oscillation difficult to stop, or the same effect in a more marked manner was produced by the accidental touching of the balance-

beam. This drew my attention to the probable danger of the governor-holder unsealing; the accidental striking of it; or irregularity of working in consequence of wind blowing in at the door and shaking the governor-holder. It has, therefore, been my practice for many years to double the depth of the governor-tank, for the purpose of getting guide-rollers both at top and bottom of the governor-holder, as also to guard against accidental striking of the holder, action of wind, &c. In addition to this I have had two straps of iron secured over the top of tank, to prevent the possible accident of the holder unsealing in consequence of the cone-attachments breaking. A constant water supply, regulated by means of a ball-valve placed in an ordinary kitchen-range regulating tank-box, is also fixed in the governor-house, and the water overflow is so regulated as to take off the surface supply, if any; besides which a hole is drilled in the tank side, a little higher, to show, by overflowing on to the floor of governor-house, to the man in charge if there should be any stoppage in the overflow.

To prevent the accidental working of the beam too far, the outer end works in a guide or slot, having two vulcanized india-rubber pads.

I may mention that the idea of guarding against the rising of the holder bodily out of the tank by accident, suggested itself to me in consequence of the bad state I have found many old governors to be in, especially about the cone and attachments.

HODGSON JONES.

26, *Great George Street, Westminster,*
Nov. 21, 1865.

Register of New Patents.

547.—COMYN CHING, of 23, Little St. Andrew Street, Upper St. Martin's Lane, London, gas engineer, for "*An improved fluid-valve.*" Patent dated Feb. 27, 1865.

This improvement consists first of a peculiar arrangement of the corresponding portions of the cylindrical vessel and the plunger, for adapting quicksilver or any other suitable fluid to the purpose of controlling the passage of other liquids or fluids of less specific gravity. Secondly, in the use of double receptacles for quicksilver or other sealing fluid, and the arrangement of parts described, whereby the same movement of the plunger produces a reverse action in the respective fluid receptacles, and so accomplishes in each case the particular effect required.

549.—WILLIAM SIM, of Glasgow, for "*A method of extracting gases from mineral oils, and in employing the same for illuminating and heat-producing purposes, and in the machinery or apparatus connected therewith.*" Patent dated Feb. 27, 1865.

This invention has for its essential object the employment of the gases produced by the heating of mineral oils for the production of heat and the generation of steam; and when employed for the latter purpose, it is preferred to convert the oil into gas for burning in a retort placed in the ordinary fire or fuel chamber of steam boilers. The gas may, however, be conveyed from a gasholder, or other apparatus suitable for containing it previous to being burnt. It is, nevertheless, considered advantageous to employ it direct from a retort placed in the furnace of the boiler, as by means of this it is supplied and maintained at a high temperature, which is very desirable for the efficient working of the process, and for effecting an economical use of the oil.

The claims are—

1. The general arrangement and construction of apparatus for the utilizing of gases produced by the vaporizing of mineral hydrocarbon oils for the generation of steam and the production of heat generally as described, or any mere modification thereof.

2. The process of vaporizing mineral oils and burning them in the state of gas for heat-producing purposes.

3. The special arrangement and construction of retorts for vaporizing and gasefying mineral oils substantially as described.

568.—THOMAS SLOCOMBE HALL, of Truro, Cornwall, wine merchant, for "*Improvements in gas-burners.*" Patent dated Feb. 28, 1865.

This invention relates, first, to that class of gas-burners known as Argand burners, in which gas issues from an annular aperture or from an annular arrangement of holes, leaving a central space for the passage of air to the central part of the flame to support combustion. The object of the invention is to cause more perfect combustion of the gas, and consequently greater economy, than with burners of the ordinary kind.

In the drawings accompanying the specification, various modes of effecting this object are shown, one of which consists in adapting to the central aperture of the burner an adjustable button or disc, which will have the effect of regulating the supply of air to the flame, and of deflecting it in such a manner as to cause a proper combustion of the gas. Air to the outside of the flame is made to pass up through a perforated metal plate. The adjustable disc or button is mounted on the upper end of a vertical rod or pin, which is provided at its lower part with a toothed rack, into which gears a pinion, whereby the rod and disc may be raised or lowered as required.

In another modification, the rod is screwed, and is raised and depressed by turning a milled head below. In another, the arm is attached to a bar, which is inserted in a slot or socket, in which it is capable of being moved up and down, and of being fixed in any desired position by means of a set screw. In order to prevent sudden currents of air from affecting the flame, two discs or plates are employed, the upper of which is provided with three projecting points, which will keep it central in the opening. The second disc is made of perforated metal, and is placed below the regulating disc, in order to prevent the wind from injuriously affecting the currents of air. If preferred, the position of these discs may be reversed —*i.e.*, the perforated disc may be placed above the other. If thought desirable, the discs, instead of being made adjustable, may be fixed at once into their proper places in the burner.

Another form of burner, which is particularly applicable for producing jets or pencils of flame for blow-pipe purposes, consists in making a circular aperture for the issue of the gas, and converting it into an annular aperture by the addition of a central tube, through which a jet of air is forced into the centre of the flame in the same direction as the gas is issuing from the central opening.

571.—JAMES YOUNG, of Manchester, gentleman, for "*Improvements in distilling bituminous substances.*" Provisional protection only obtained. Dated March 1, 1865.

These improvements consist in the employment, for the distillation of such substances, of a chamber or vessel, with an opening at the top, by which the coal or other bituminous substance is introduced, and an opening at the bottom, by which the residue is withdrawn; the heat required to distil the bituminous substance being the hot products from the combustion of coke or other fuel, forced or drawn through the interior of the chamber or vessel among the substances to be distilled.

596.—WILLIAM RENWICK BOWDITCH, of Wakefield, clerk, for "*An improvement in carburetting gas, an improvement in the preparation of hydrocarbons for carburetting gas, and improvements in treatment of alkali which has been used to purify coal oils, shale oils, petroleum, and other mineral oils.*" Patent dated March 3, 1865.

In carrying out the improvements in carburetting gas, a gas-tight vessel is employed, having an inlet and one or more outlets for gas, the latter being so placed that there is a free passage for the gas when the vessel contains hydrocarbons. There is also an aperture through which the vessel is supplied with hydrocarbons, which aperture is closed by a screw-plug or otherwise. After the hydrocarbons are placed in the vessel, which is closed securely, the gas is turned on to the burners, and the vessel and its contents are heated by gas, hot water, or other convenient source of heat, so that the temperature is raised to no more than 215° Fahr. On its way from the inlet of the carburetting-vessel to the burners, the gas passes over the surface of the heated hydrocarbons, and carries with it a portion of their vapours, by which its illuminating power is increased.

The vessel in which the hydrocarbons are heated is best made to form part of gaseliers or other gas-burning apparatus. When it cannot be so incorporated, it may be placed near the meter or in any other convenient situation; but in that case the gas-pipes must be so fitted as to avoid any depressions in which condensed hydrocarbons might lodge and accumulate in the pipes.

The hydrocarbons which it is preferred to employ are the oils obtained by the distillation of gas tar mixed with naphthaline, and the best mode of using them is to dissolve the naphthaline in the oils, and pour the mixture into the carburetting-vessel, or first to fill the vessel with naphthaline, and then pour the oils upon it.

In the preparation of the hydrocarbons for carburetting gas, the oils are put into a still, and steadily heated up to 280° or 300° Fahr., at which temperature they are maintained until no more than a few drops come from the still. The receiver is then changed, and the temperature raised very gradually to 500° Fahr.

The improvements in the treatment of alkali which has been used to purify coal oil consist in passing the impure alkaline solution through a current of carbonic acid until two layers are formed, which are separated by a syphon, or in any convenient manner. The oily compounds are employed for steeping timber or other suitable use. The alkaline solution is evaporated to obtain its salts in the solid state, or it is treated at once with lime to obtain caustic alkali.

Another method by which the alkali may be recovered consists in exposing the impure alkaline solution freely to the atmosphere for a considerable period, by which the oily compounds become decomposed, and the alkali partially carbonated. Upon being rendered caustic by the addition of lime in the usual manner, the alkali is fit for use in the purification of hydrocarbon oils.

The claims are—

1. For carburetting gas for illuminating purposes by passing it over heated hydrocarbons, substantially as described.

2. The preparation and use of hydrocarbons of an appropriate volatility for carburetting gas, substantially as described.

3. The treatment of the alkaline residuum arising from the purification of mineral oils, so as to obtain useful substances therefrom, substantially as described.

620.—RICHARD ARCHIBALD BROOMAN, of 166, Fleet Street, for "*Improvements in pumps.*" A communication. Provisional protection only obtained. Dated March 6, 1865.

Upon two hollow columns or pillars which serve as the suction and discharge pipes of the pump is mounted a horizontal cylinder, the interior of which is in communication with the interior of each of the hollow columns. Within the cylinder a drum is caused to rotate on horizontal axes. This drum is also in contact with a longitudinally packed rib on the inner surface of the cylinder, which shuts off direct communication between the two hollow columns. The drum is not in contact with the cylinder at any other point, but carries four or other convenient number of spring pistons, which, as the drum rotates, bear against the inner surface of the cylinder. These pistons are fitted in pairs at diagonally opposite points of the drum, each pair being connected by a tube passing through the axle of the drum. A spring is fitted behind each piston, and keeps it in contact with the surface of the cylinder. As the pistons in their revolutions approach the longitudinal rib before mentioned, they recede into the drum until they have passed the rib, the corresponding piston being forced out on the opposite side. The cylinder is closed at each end by a plate. One of the plates is formed with an aperture and stuffing-boxes to receive the axle of the drum, and the other plate has on its inner face a socket to receive the other end of the axle. These plates are fixed to the cylinder by bolts, india-rubber or other washers being interposed to make the closing hermetic. The inner face of each plate has an annular groove filled with leather for the ends of the drum to bear against. The cylinder is formed with two openings near its upper part

for use in priming or starting the pump when required. These openings are closed hermetically with plates.

One of the hollow columns is in communication with the well or other reservoir from which the liquid is to be pumped, and each column is formed with a socket to receive a pipe when required. Where the liquid has to be raised from a great depth, the column in which it is to be raised is fitted with a valve to prevent the return of the liquid.

648.—JOHN SHANKS, of Barrhead, in the co. of Renfrew, N.B., plumber' for "*Improvements in water-closet apparatus.*" Patent dated March 8, 1865.

This invention relates to various modifications of improved water-closet apparatus to suit different situations and requirements, such apparatus being simple and economical in construction and use, and not liable to get out of order. The various arrangements and appliances are, however, not described apart from the drawings.

668.—GEORGE FREDERICK ANSELL, of Bernard Street, Russell Square, London, analytical chemist, for "*An improved mode of, and apparatus for, ascertaining and indicating the presence of explosive gases.*" Patent dated March 9, 1865.

The object of this invention is to provide a certain means of indicating the presence of inflammable or explosive gases in mines, buildings, and the holds of ships. To this end the natural law known as the diffusion of gases is made available, and the patentee relies upon the endosmosis action of the gas whose presence it is desired to make known to give a visible or audible indication of its presence; and, when desired, of indicating the per centage of gas that is present in the atmosphere.

The claim is for applying the principle of the diffusion of gases to indicate the presence of inflammable or explosive gases, by adapting to suitable indicating apparatus a porous air vessel or chamber in which the volume of the enclosed air may be increased, as described.

669.—VICTOR DELPERDANGE, of Brussels, in the kingdom of Belgium' engineer, for "*An improved method of connecting together tubes or pipes used for conveying gas and water, and for other purposes.*" Patent dated March 9, 1865.

This invention relates more particularly to an improved method of connecting branch pipes to main pipes. The modes heretofore commonly practised for effecting this have been either by flanges bolted together, or by sockets filled with lead or cement for large pipes, and for small pipes by cutting a screw on the branch pipe and securing the same into a screwed hole formed in the main pipe. By adopting the above methods great difficulty is experienced in disconnecting the pipes thus connected together. This objection it is proposed to obviate in the following manner. An oblong, oval, or other shaped long hole is formed in the main pipe, and that end of the circular branch pipe which is to be connected to the main pipe is spread or widened until it assumes a form somewhat similar to the hole in the main pipe. This end of the branch pipe has a screw cut about it, and carries a nut and loose metal washer, and resting upon this washer another washer of vulcanized india-rubber or other suitable elastic material. To connect the branch pipe thus fitted and formed to the main pipe, the end of the branch pipe is inserted into the long hole in the main pipe and the branch turned round one quarter of an entire turn, after which the nut is tightened against the washer and hole in the main pipe. By these means the enlarged end of the branch pipe, being crosswise of the narrow part of the hole in the main pipe, may be securely connected thereto and disconnected therefrom at will.

684.—CHARLES JOHNSON, of Oxton, near Birkenhead, landscape gardener, for "*An improved combined tee-piece and valve.*" Patent dated March 11, 1865.

This invention consists in combining a T-piece and a valve, or stop-valve, in one connected piece, that is, so arranging or fitting a valve or plug on a spindle to be operated by a screw-wheel lever, or other handle, that it can be made to close against a seating and cut off the flow through the vertical part of the T, or can be arranged to shut off either of the other passages and direct the flow of the fluid through the said vertical part and one of the horizontal parts.

698.—JOHN BRAGG, of Liverpool, for "*Improvements in traps to prevent the uprising of noxious gases in sewers, drains, sinks, shafts, and other passages for fæces and other matter.*" Provisional protection only obtained. Dated March 13, 1865.

A trap constructed according to this invention consists of a round, oval, or any other suitably shaped box or chamber, connected at the top with a supply-pipe or other passage, and at the bottom with a discharge passage, which box or chamber is divided internally by an oblique partition, to the front or lower end of which is joined a flap or valve-cover capable of covering the opening between the fixed oblique shelf or plate and the opposite side of the chamber or box. This vibrating flap is fitted on the back, or constructed with a weighted lever, which extends backwards beneath the oblique fixed plate, which has the effect of keeping the vibrating flap closed when not acted upon from above. To prevent the dirt getting into the hinge of the vibrating flap or valve, the lower edge of the fixed oblique shelf may be formed with a step, to the front or lower edge of which the flap is jointed, when a piece of metal or other suitable material is laid in and secured thereto, so as to cover the top of the hinge-joint, forming a guard thereto. This apparatus is placed within the sewer, drain, shaft, or other situation where it may be required. The sewage or other matter is allowed to pass through the top of the chamber, and falling upon the vibrating flap or valve it causes it to deflect, and allows the material to escape through the opening into the sewer or other passage, after which the vibrating flap immediately closes by its own action, thus preventing the escape of the noxious gases.

704.—WILLIAM CLARK, of 53, Chancery Lane, London, engineer, for "*Improvements in apparatus for holding and regulating the position of lamp-shades or reflectors.*" A communication. Provisional protection only obtained. Dated March 13, 1865.

This invention relates to an improved apparatus for supporting the reflectors of lamps, by the aid of which these reflectors may be inclined in such a manner as to direct the light on one side or the other. The apparatus consists of a zone or section of a sphere made hollow and grooved on its exterior surface, the same being fixed to the chimney of the lamp, or gas-burner on which it is applied; an oscillating ring is also mounted in axes at about the centre line of this zone to carry the reflector or shade, to which ring are fixed the parts for maintaining it in its relative position with the zone for producing the inclination of the reflector.

APPLICATIONS FOR LETTERS PATENT.

2893.—EDWARD MYERS, of Millbank Row, Westminster, C.E., for "*Improvements in the arrangements and construction of wet gas-meters.*" Nov. 10, 1865.

2905.—JOSEPH ALFRED NICHOLSON, of Adelaide Place, London Bridge, London, for "*Improvements in regulating the flow of water and other fluids in pipes and valves, and determining the quantity passing through the same.*" Nov. 11, 1865.

2912.—PETER ELLIS, of 9, Orange Court, Liverpool, Lancaster, architect, for "*An improved description of water-closet, which I denominate 'the cylindrical double-pan water-closet.'*" Nov. 13, 1865.

2934.—JULES THÉODORE ANATOLE MALLET, engineer, of 29, Boulevart St. Martin, Paris, for "*A new or improved process for the manufacture of oxygen.*" Nov. 14, 1865.

2935.—SAMUEL LAWRENCE GILL, of 4, Campbell Terrace, Bromley, Middlesex, for "*Improvements in gas-stoves.*" Nov. 14, 1865.

2945.—WILLIAM CLARK, of 53, Chancery Lane, London, engineer, for "*Improvements in the manufacture or purification of hydrocarburets, and especially of petroleum oils used for lighting purposes.*" A communication. Nov. 15, 1865.

2946.—WILLIAM EASTON, of Gateshead, Durham, for "*Improvements in the construction of pumps for raising water and other liquids.*" Nov. 15, 1865.

2965.—JAMES HARBERT, of Kidderminster, Worcestershire, gas-fitter, for "*Improvements in the production or manufacture of gas for heating or illuminating, and in the retorts and apparatus employed in such manufacture.*" Nov. 17, 1865.

2972.—FREDERICK WILKINS, of 254A, Oxford Street, London, for "*Improvements in apparatus for the production of hydrocarbon or other vapours, parts of which apparatus are also applicable to measuring gaseous or fluid matter.*" Nov. 18, 1865.

2986.—GEORGE PUTLAND HEMMING, of 12, Winchester Street, Maldon Road, Kentish Town, Middlesex, and HENRY COYLE, of 46, Great Marylebone Street, London, for "*An improved trap or liquid sealing to the covers of cisterns, pans, jars, tubs, and other vessels or chambers.*" Nov. 20, 1865.

2998.—WILLIAM WELLS, of Manchester, gentleman, and SAMUEL MARLAND, of Clayton, near Manchester, oil refiners, for "*Improvements in apparatus for obtaining artificial light from volatile liquids or fluids.*" Nov. 22, 1865.

GRANTS OF PROVISIONAL PROTECTION.

2719.—ISHAM BAGGS, of 54, Chancery Lane, London, electrical engineer, for "*Improvements in the manufacture of inflammable gases, and in their application to useful purposes.*" Oct. 21, 1865.

2786.—HENRY LARKIN, of 6, Torriano Cottages, Leighton Road, London, for "*Improvements in lamps for the combustion of magnesium, and in preparing magnesium for burning.*" Oct. 28, 1865.

2804.—ARTHUR DESLANDES, of Manchester, Lancaster, professor of French, for "*Certain improvements in the apparatus employed in the manufacture and production of metallic pipes, tubes, or other similar hollow castings.*" A communication. Oct. 31, 1865.

2808.—HENRY YOUNG DARRACOTT SCOTT, of Ealing, Middlesex, Lieut.-Colonel in the Royal Engineers, for "*Improvements in the treatment and deodorization of sewage water.*" Oct. 31, 1865.

2818.—CHARLES HENRY WOOD, of Jewry Chambers, Aldgate, analytical chemist, and EDWARD LOUIS BARRETT, of Thrawl Street, Spitalfields, London, manufacturing chemist, for "*An improved mode of purifying gas.*" Nov. 1, 1865.

2833.—JAMES WEBSTER, of Birmingham, Warwickshire, engineer, for "*Improvements in generating and applying certain gases, and in apparatus to be employed therein.*" Nov. 2, 1865.

2848.—WILLIAM BRETT, of the Gas-Works, Hertford, Hertfordshire, for "*An improved truck or barrow for wheeling and tipping coke, coal, or other substances.*" Nov. 4, 1865.

2893.—EDWARD MYERS, of Millbank Row, Westminster, C.E., for "*Improvements in the arrangements and construction of wet gas-meters.*" Nov. 10, 1865.

2905.—JOSEPH ALFRED NICHOLSON, of Adelaide Place, London Bridge, London, for "*Improvements in regulating the flow of water and other fluids in pipes and valves, and determining the quantity passing through the same.*" Nov. 11, 1865.

2935.—SAMUEL LAWRENCE GILL, of 4, Campbell Terrace, Bromley, Middlesex, for "*Improvements in gas-stoves.*" Nov. 14, 1865.

2945.—WILLIAM CLARK, of 53, Chancery Lane, London, engineer, for "*Improvements in the manufacture or purification of hydrocarburets, and especially of petroleum oils used for lighting purposes.*" A communication. Nov. 15, 1865.

NOTICES TO PROCEED.

1816.—HECTOR AUGUSTUS DUFRENÉ, of 4, South Street, Finsbury, London, civil engineer, for "*An improved self-acting apparatus for obtaining a circulation of volatile liquids.*" A communication. July 8, 1865.

1841.—HARRISON BLAIR, of Kearsley, Lancaster, manufacturing chemist, for "*Improvements in the production of gases from aqueous vapour, and in the application thereof to heating purposes.*" July 12, 1865.

1864.—RICHARD ARCHIBALD BROOMAN, of 166, Fleet Street, London, for "*Improvements in pumps.*" A communication. July 17, 1865.

1980.—ALFRED VINCENT NEWTON, of 66, Chancery Lane, London, mechanical draughtsman, for "*An improvement in refining petroleum and other hydrocarbon oils.*" A communication. July 31, 1865.

2503.—CHARLES FORSTER COTTERILL, of Cannock, Staffordshire, gentleman, for "*Improvements in connexions for and in stopping pipes used for conveying water and gas, and for other like purposes, and in preventing leakage in the said pipes, and in apparatus employed therein.*" Sept. 29, 1865.

2549.—JAMES WEBSTER, of Birmingham, Warwickshire, engineer, for "*Improvements in gas-meters.*" Oct. 4, 1865.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

2993.—RICHARD ARCHIBALD BROOMAN, "*Improvements in commodes or water-closets.*" A communication. Nov. 5, 1862.

2994.—RICHARD ARCHIBALD BROOMAN, "*Improvements in taps or cocks.*" A communication. Nov. 5, 1862.

3027.—JEAN BAPTISTE LAVOINE, "*A kitchen-range adapted for cooking, warming the apartments, and generating gas for the use of private families, hotels, or gentlemen's country seats.*" Nov. 10, 1862.

3041.—EDWARD MARRIOTT and SAMUEL HOLROYD, "*Improvements in the purification of gas, and in obtaining certain useful products therefrom.*" Nov. 11, 1862.

3058.—MOSS DEFRIES, "*Improvements in the manufacture or construction of lamps.*" Nov. 13, 1862.

3066.—EDMUND SMALL CATHELS, "*Improvements in apparatus used in the manufacture of gas.*" Nov. 14, 1862.

3082.—JAMES WILSON, "*Improvements in hydraulic pumps.*" A communication. Nov. 15, 1862.

3093.—JAQUES ARBOS, "*Improvements in generating certain gases for lighting and heating, and in apparatus employed therein.*" Nov. 18, 1862.

3099.—ROBERT BROWN, "*Improvements in warming and ventilating, more especially applicable to buildings, carriages, and ships, and in apparatus to be employed for that purpose.*" Nov. 18, 1862.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £100 BEFORE THE EXPIRATION OF THE SEVENTH YEAR.

2604.—JOHN LESLIE, "*Improvements in the manufacture of gas.*" Nov. 18, 1858.

Legal Intelligence.

DORSET MICHAELMAS QUARTER SESSIONS.

DORCHESTER, WEDNESDAY, OCT. 18.

(*Before Lord* PORTMAN, *Chairman; and a Bench of Magistrates.*)

THE WEYMOUTH WATER-WORKS COMPANY, APPELLANTS; *v.* THE PARISH OF PRESTON-CUM-SUTTON POINTZ, RESPONDENTS; AND THE ASSESSMENT COMMITTEE OF THE WEYMOUTH UNION, CO-RESPONDENTS.

Mr. STOCK, Q.C., and Mr. COLLINS for the appellants, and Mr. PRIDEAUX and Mr. W. FFOOKS for the respondents.

Mr. STOCK said in this case the Weymouth Water-Works Company were the appellants, and they sought to appeal against a poor-rate made on the 20th of April last, and the respondents were the overseers of Preston-cum-Sutton Pointz, and also the Assessment Committee of the Weymouth Union. It would probably be within his lordship's knowledge that by the Assessment Committee Acts, the last of which was passed in 1864. Under the second section of that Act power was given to the committee of the union to appear and defend any appeal against a rate made under their assessment; consequently, although the overseers of Preston were the respondents in this case, the real respondents, he might say, were the Assessment Committee of the Weymouth Union. It would be his duty, in submitting this case to the court, to give a short history of this company. In the year 1797 an Act was passed to supply Weymouth and Melcombe Regis, and the parts adjacent, with water. It would not be necessary for him to call their attention to the various clauses of that Act, but he would mention that by the 30th section the works were to be rated in the same proportion as the lands adjoining, no increased value was to be set upon the works as they were to be applied for the purposes of a water company. He did not think this would become material, for he expected to find that his friends on the opposite side would not object to the rating of the works which were abandoned; but the contest between them was for other works, under another Act of Parliament. The works of the company, under the old Act of Parliament, were constructed in the year 1797, and the town of Weymouth and parts adjacent were supplied with water from that period up to the year 1857. Shortly before that time it was found that the supply of water was quite inadequate to the requirements of the town, and accordingly another Act was obtained in the year 1855 to enable the company to increase their supply and construct new works. Their old supply was from a point in Preston called "Boiling Rock;" the new supply was taken from Preston River, and the Act came into operation on the 24th of June, 1857. From that time the old works seemed to have been abandoned, being only used for watering cattle belonging to Mr. Weld. He apprehended, however, that no question would arise respecting the old works. He would now call the attention of the court to the water delivery of the company under the new Act of Parliament. The amount of water delivered by the company to customers in Preston was very small—so small, indeed, as to be subject to little or no rating at all. The water-rates in that parish were only £6. 19s. 11d. per annum, whilst in Radipole they were £200. 1s. 11d.; in Melcombe Regis, £2088. 18s. 7½d.; in Weymouth, £538. 12s.; and in Wyke, £107. 13s. 1½d. Now these were all the parishes which were supplied by the Weymouth Water-Works; no other parish was supplied by the company. He would now call his lordship's attention to the works which the company had constructed at Preston. He should have to call witnesses to speak to the value of each of them; therefore it would not be necessary for him to trouble his lordship by taking it down. The new works erected in the parish of Preston under the new Act were as follows:—1st. About one acre of land at the springhead. 2nd. A large reservoir near the springhead. The others consisted of turbine-houses and engine, a cottage which the company erected on the side of the hill, and new piping, which in this parish extended 4889 lineal yards. These were all the works of the company in that parish, and he should have occasion by-and-by to go into the question of the rateable value of them. On the 21st of October, 1864, the overseers of Preston raised the rate upon the company's works in the parish of Preston, which had previously been rated at £180 rateable value, to the exceedingly high sum of £400 rateable value—a very considerable increase. He was bound to tell the court that there had been some additions to the company's works, but these were only trifling, and not calculated to raise the rating beyond a very small sum. The new rate was made on the 24th of October, in which the water company were assessed at £400 per annum rateable value. No notice, however, was given to the overseers at the time, as should have been done, in order for them to make an objection in time, but afterwards notice of objection was served upon the Assessment Committee on the 20th of December.

The CHAIRMAN: By the overseers?

Mr. STOCK: No, my lord; by the company. I made a mistake in saying overseers.

The CHAIRMAN: You must first appeal to the Assessment Committee before you are entitled to appeal to the Court of Quarter Sessions.

Mr. STOCK: Although this notice of objection was served on the 20th of December, the matter was not decided until the 13th of June following, and consequently the company lost the opportunity of appealing against the rate made in October, and had to pay the rate—a case of great hardship. The law had not provided, in the Union Assessment Act, power to compel the committee to give a decision within a given time, and so the Assessment Committee thought proper not to give any decision until the 13th of June. A second notice of objection was served upon the Assessment Committee on the 12th of May. As the decision of the committee was not given until the 13th of June, the appeal was too late to come before the Midsummer sessions, consequently the company had been delayed until now in making their appeal.

Mr. PRIDEAUX: I do not think you were too late.

Mr. STOCK: The grounds of the appeal were these: firstly, that the said company is aggrieved by the said rate, because the property of the said company is unfairly, incorrectly, illegally, and excessively rated to the said rate; secondly, that the said company is aggrieved by the said rate, because, the land and buildings of the said company are and each of them is greatly overvalued in the said rate. There were two other grounds of appeal, but he did not intend to rely upon them. They were simply technical objections, one of which he thought was a doubtful one, and would not, therefore, waste the time of the court by stating it. He had now given them a short history of the facts of the case, at least so far as he thought necessary, and he would now call the attention of the court to the general rules and principles of ratings of this kind, and afterwards proceed to apply them to this particular case. The Acts upon which the present appeal were based were the 5th and 6th William IV. and the Stock-in-Trades Acts, from which it would be perceived that it was illegal for any water-works, gas-works, or such like company, having their chief source of supply in one parish to be rated for parochial purposes in respect of any profits derivable from the mains, pipes, &c., running in other parishes, and contended that only corporeal hereditaments were legally subject to rating. In support of this argument he called the attention of the court to the first clause of 4th and 5th William IV., cap. 96.

The CHAIRMAN: It is hardly worth while going into that matter; it is far better to see how the facts of the case apply to law.

Mr. STOCK: It is necessary for me to show what the law is upon the matter. The question of law which arises in this case is exceedingly abstruse. You will find that in this case there are points which I must lay down before coming to the general principles.

Mr. PRIDEAUX: I do not understand what my friend is driving at. I will not deny for a moment that you can only rate corporeal property.

Mr. STOCK: The Stock-in-Trades Act says that profits cannot be rated. There has been a question raised whether profits are rateable or not. It rateable, in what manner they can be rated. He contended that the company ought to be rated only for their water-works and other buildings, the value of pipes and conduits, the land occupied by reservoir, &c., according to their agricultural value, with an additional sum upon the gross amount, as being of greater value for water-works purposes. He further contended that it was not lawful for any overseer of a parish to tax any inhabitant thereof in respect of his profits derivable from stock-in-trade, or any other property; also, that the parish in which the profit was actually received was the parish in which property, not in the nature of a corporeal hereditament, should be rated. It had been argued that gas and water companies which occupied lands by means of drains and pipes, were not rateable to an increased value, because the thing which was conveyed through the drains or pipes produced profits for rating in some other way. There had been a long contention whether or not the parochial system, or the principle laid down in the Mile-End Old Town case, was the one which should guide them in cases of this sort. It had been established that the parochial principle was the principle upon which they should act in this case, so far as profit was derived, conduced to indirectly by pipes and mains being laid down in a parish, but which did not deliver their contents in that parish, that the occupation of that land was not rateable because of the increased value given to the land. He now came to the great point of the case—was this property which had been assessed legally rateable? He maintained that all the propositions which he had advanced so far were indisputable ones, and he was at a loss to know what his friend could base his case upon. He (Mr. Stock) did not intend to trouble the court with many cases in reference to the present appeal, but there were two cases to which he must call their attention. He now came to the disputable part of the matter, which was this: supposing a company to be the possessor of works, pipes, and mains in a particular parish, which only indirectly conduced to the receipt of profit, what was the amount in which the property was to be rated? For this purpose he would call the attention of the court to two cases, one of which was *The Queen v. The Churchwardens of Mile-End Old Town*, but he would only read the marginal notes. The learned counsel then read the passage referred to, and quoted Lord Denman's judg-

ment thereupon, after which he said he now came to what he might call the guiding case.

The CHAIRMAN: The West Middlesex?

Mr. STOCK: Yes, the Hampton case, reported in the 28th vol. of *Law Journal*, page 135. The learned counsel then, at great length, read extracts from this case, as also the judgment given by Lord Chief Justice Wightman, and alluded to the case of *The Queen v. The Sheffield Gas Company*, where it was held by the judges that the law was so vague, that nothing could be done until the Legislature interfered. After some other remarks, Mr. Stock contended that this Preston case was similar to the Hampton one, because there was no direct receipt of profit in Preston. He now came to the question of how they were to ascertain what additional value could be put upon the property. For that purpose he should call before the court Mr. Hawksley, who, he had no doubt, was known to his lordship and many members of the bench, especially those in Parliament. He was vice-president of the Institute of Civil Engineers of this country, and he would tell them his views of what the additional value of the property ought to be in consequence of the uses to which it was applied. Now, he had looked over Mr. Hawksley's estimate, and he must say that he considered that that gentleman had been too liberal; he had put down the additional value so high, that he thought it was an error, but if so, it was an error on the right side, and one at which the opposite party could not cavil. One portion of the land he (Mr. Hawksley) valued at 150 per cent., whilst in another part of his valuation he found him giving 242, and so on. He had made his valuation upon a most liberal scale; he had proceeded upon the principle laid down in the Hampton case. All he (Mr. Stock) could say was, that his valuation was too liberal, and that the land and buildings had been charged too high. Mr. Stock here handed the chairman a copy of Mr. Hawksley's valuation, which will be found incorporated in his evidence, directing his lordship's attention to several of the items. After Lord Portman had perused it, Mr. Stock said that Mr. Hawksley was a gentleman who had had more experience in this class of cases than any other person—not simply as an engineer of the first merit, but, having given a great portion of his time to the works connected with water companies, he was very familiar with the matter. He (Mr. Stock) did not know how his friend would meet his evidence, but he was told he was going to call a gentleman——

The CHAIRMAN: You are going to put an hypothesis, and you know we rather object to hypotheses.

Mr. PRIDEAUX: Are you going to call yourself as a witness?

Mr. STOCK: No.

Mr. PRIDEAUX: Then I do do not think the court can hear you, as an apothesis.

The CHAIRMAN: You have not told us what abatement you want.

Mr. STOCK: The gross value, according to our estimate, is £460. 12s., subject to certain deductions amounting to £169. 19s., leaving a balance of £290. 13s. rateable value, to which I ask you to reduce the rating.

The following evidence was then called:—

Thomas Hawksley, Esq., examined by Mr. STOCK.

I am vice-president of the Institute of Civil Engineers. I have been connected with the Weymouth Water-Works Company since the year 1855. I have had opportunities of seeing the pipes and works of the company. I designed the works and superintended their construction as engineer-in-chief. I have made an estimate of the net annual rateable value of the company's property in the parish of Preston, which is as follows:—

For land at Springhead, 1 acre at £40 agricultural value, but with regard to its capacity for water-works purposes	£100	0	0		
Value of reservoir to make the spring available for water-works purposes	500	0	0		
Value of land and water at Springhead with regard to its capacity for water-works purposes				600	0	0

The land at Springhead was a very rough piece of ground near a chalk hill, and was of little value except being attached to a farm. The principle upon which I have acted in making this estimate, is laid down in the Mile-End Old Town case, and especially as exemplified by the Hampton case, in which there is a distinction drawn between parishes in which there are earnings of the nature of profits, and those parishes in which there are no earnings of a profitable nature. The reason why I placed £100 upon the land was that, according to my experience, it was a sum which would, under ordinary expenses, be paid by a water-works company for the acquisition of such a piece of ground. This is £150 per cent. The reservoir cost us £654. There was an accident which cost us £150, and that left us £504 for the cost of forming our reservoir. The reservoir gives additional value to the land. It had raised the value of the land in the present case from £60 to £600.

The CHAIRMAN: I want to know whether the reservoir stands upon the land which you value at £100?

Witness: It does.

20-inch conduit pipes leading to hill, 516 yards at 30s. per yard	£774	0	0		
Land occupied by same, 516 yards lineal at 2s. per yard	51	12	0		
				£825	12	0

The land is rented at 1d. per yard lineal for water-works purposes. I have taken 24 years purchase upon that amount of land, and that makes 2s., which comes to £51. 12s. The surface of the land is not at all injured by inserting the pipes. It is just as good for agricultural purposes.

The CHAIRMAN: Are you the owners of the land?

Witness: No, we have only an easement in it.

Mr. STOCK: That does not make the land above less valuable?

Witness: Oh, no.

Land occupied by cottage, garden, and turbine-houses, 1 acre	£250	0	0		
Buildings as erected especially for water-works purposes	579	0	0		
Cottage	250	0	0		
				£1079	0	0

The land is rather more than a shilling per square yard. The land is partly in the village and partly out. The buildings are simply single-story buildings, of great strength, to receive the turbines, by means of which the water is pumped. (To the chairman:) A turbine is a kind of horizontal water-wheel. The old cottage was pulled down, and a new one erected.

9-inch main pipe to reservoir, 1083 lineal yards at 12s. per lineal yard	£649	16	0		
Land occupied by same, agricultural value £40, but for water-works purposes 1s. per lineal yard, or £242 per acre	54	3	0		
				£703	19	0

For a 9-inch pipe of that size we usually pay 1s. per yard. The grass crops over the land, are not diminished in value to the agricultural tenant. We do not interfere with the right of the owner, but we have just the chance of interfering with the right of the tenant, because if a pipe were to burst we should have to go on the land; but this is a thing which does not happen once in twenty years. The pipes are 2 feet 6 in. under the surface. We do not find the pipes burst often. After the first three months they are quite safe, and will last for twenty years.

Land occupied by service reservoir, 1 acre; agricultural value, £40; but for water-works purposes	£ 100	0	0			
Service reservoir as erected specially for water-works purposes	2034	0	0			
11-inch main pipe leading from reservoir towards the town, 3290 lineal yards, at 14s. per lineal yard	2303	0	0			
Land occupied by same, agricultural value, £40; but for water-works purposes 1s. per lineal yard, or £242 per acre	32	0	0			
				2335	0	0
Total value of hereditaments in Preston, with additions in respect to their capacity for water-works purposes				7677	11	0
Which taken at 6 per cent. to let from year to year, irrespective of profits of trade (such profits not being by law rateable), is of the gross annual value of				460	12	0

But this is more than any tenant will give for the occupation. The statutable deductions are—

1st. Tithe commutation rent charge	£	0	10	0		
2nd. Insurance of buildings destructable by fire £600 at 3s.		0	18	0		
3rd. Ordinary repairs		25	0	0		
4th. Renewals to maintain property in a condition to command the rent of 1 per cent. on £7090.		70	18	0		
5th. Rates and taxes at 5s. in the pound on a net rateable value of £290. 13s.		72	13	0		
					169	19	0
Making the net rateable value of the property					290	13	0

Cross-examined by Mr. PRIDEAUX: The elevation of the land at Springhead is about 40 feet. The spring and reservoir are fenced in. The cost of making the reservoir and spring was £654; but there was an accident which cost the company £150 of that money, so that the expense was £504. The £7677. 11s. did not include the compensation paid to owners and tenants. I cannot say whether the £2000 paid for the destruction of the mill was given for compensation. The compensation added no value to our property. A great deal of property was destroyed by the water-works. When we took the stream, we had a very large sum to pay for compensation to persons who irrigated land below the works.

The CHAIRMAN: Was this in Preston?

Witness: Yes; but this does not add to our rateable value.

Mr. STOCK: I do not see that the question of compensation has anything to do with the case.

The CHAIRMAN: I think it is a very important element in the matter, for inasmuch as you diminish the value of one person's property, you do so to improve your own.

Cross-examination continued: We have paid altogether for compensation between £5000 and £6000.

The CHAIRMAN: I think you had better confine your remarks to Preston.

Cross-examination resumed: We have paid £4037. 2s. 10d. for compensation in Preston. You may call it compensation, but it was wrested from the company under the Lands Clauses Consolidation Act. It often happens, in cases, that we have to compensate persons for the loss of their works, and in no one case more than the present. The water is worked up by pumps into the reservoir by means of turbines. If the spring was not at such an high elevation, instead of having turbines the water would have had to be pumped up by steam power. Owing to having these turbines, we were compelled to erect such buildings, which we should not have done had we employed steam. It is by reason of the outlay we give value to the water which otherwise would have been of no value at all. In consequence of having the water at such an high elevation, the expense of bringing it into use was much greater than it would have been at a lesser elevation. We had to buy the land at Springhead, the reservoir to make, the expense of laying the conduit pipes, and of buying the land; besides this we had to purchase the land for erecting the buildings for the turbines. If we had steam power instead of the turbines, we should have required some of the works, not the whole of them. For instance, we should not have required the reservoir at the springhead, but we must have had a surface reservoir. The turbines were 700 yards from the springhead, whilst the surface reservoir was about 1100. If it were not for the high elevation of the spring, it would be necessary to use steam to pump water into the surface reservoir. The £2000 paid for the mill was included in the £4000.

The CHAIRMAN: Does the £4000 include everything?

Witness: Yes, everything.

Cross-examination continued: I believe the rent is all included in the compensation with respect to the property we now use. In assessing the rateable value of the property, I have taken into consideration the increased value by virtue of the turbines. If these buildings, which I have estimated at £579, were not used for turbines, but as cowhouses, they would not be worth £100. The turbines are moveable, and in case of bankruptcy could be taken away. The amount of the renewal-fund, at £70. 18s. per annum for 70 years at compound interest, would amount to £7090. [An error, the question evidently not being understood.—*See post.*] We find that in water-works the outlay for ordinary repairs is 1 per cent. per annum to command the rent. You (Mr. Prideaux) call it a "sinking-fund"—it should be a "renewal-fund." I merely adopt the expression as used by you (Mr. Prideaux). I was wrong in making the answer to the question as to the amount of the renewal-fund in 70 years at compound interest. The amount given would be an absurdity. The cost of the turbines was £500 to £600, and, with the erections, amounted to £866. I do not think the turbines cost more than £500. I have never valued an entire parish, for the purpose of assessing it to the poor-rate; but I have made some thousands of valuations of different properties for parochial purposes.

Re-examined by Mr. STOCK: I do not remember what amount of compensation was given to Mr. Spicer, the miller, for the mill. I know there was £2000 paid for the lease and loss of trade. I do not know the amount in which the mill was rated before the water-works were commenced. The rating of the property which has been substituted for the mill is enormously higher than that previously assessed. If there had not been the 40 feet elevation, there would have been a smaller outlay, but the working expenses would have been considerably increased. As I have said with respect to the "renewal-fund," it may be computed that it takes £1 per cent. per annum to keep the premises in such a state as to command the rent. This would not be hoarded up, but expended from time to time, as required.

By the CHAIRMAN: I have no knowledge of what was paid for the acre of land at Springhead mentioned in the first item, because the compensation to Mr. Weld included other matters. I believe Mr. Weld had a reversionary interest in the land at Springhead, and in the land occupied by the cottage and turbine-houses. I am not sure whether he had an interest in the land occupied by the surface reservoirs. I cannot subdivide the £4000 paid for compensation, but I know we paid Spicer, the miller, close on £2000 for the lease and loss of business, which amount is included in the £4000.

The CHAIRMAN: Some of the items, as given by the appellants, appear to be right, and some wrong, and very likely the respondents may be similarly situated. The difference between them, however, might be small. The case appears to me to have now arrived at that stage when they should agree to call in some competent person to name a sum which should settle the affair.

Mr. PRIDEAUX: When your lordship has heard our evidence, I think you will find that our assessment is a very moderate sum. The exact sum for the rateable value is £540.

The CHAIRMAN: It is my opinion, and it is also the opinion of many magistrates sitting around me, that the best way to settle the matter would be by arbitration.

Mr. STOCK: It is a question with me whether I should call other evidence to support Mr. Hawksley or not. Perhaps it would not be out of order if you (Lord Portman) would inform me upon what items I am wrong.

The CHAIRMAN: You are wrong in the first item, as also in the second.

Mr. PRIDEAUX: We make the rateable value £540.

The CHAIRMAN: I know you do. It is also a question whether the £250 for the cottage is right.

Mr. *John Pyne*, examined by Mr. STOCK.

I reside at Canford Magna, in this county, and am a land valuer and engineer. I have had considerable experience in valuing lands and buildings. I have not had much experience in valuing water-works. I have made a valuation of the works in this case. Instead of taking the agricultural value of the land at Springhead, I take it for what it is worth to rent. I find that there are 3¼ acres fenced in and taken away from the adjoining land. There is another half acre which is not quite so valuable. My estimate is as follows:—

Land taken, 3a. 3r.—Annual value					£	16	6	3
Buildings						42	0	0
					£	58	6	3
Deduct—								
Maintenance, 5 per cent. on land			£0	16	0			
„ 20 „ buildings			8	8	0			
						9	4	0
					£	49	2	3
Rates on £39, at 5s. in the pound						9	15	0
Rateable value on land and buildings							£ 39	7 3
Outlay on upper reservoir					£	500	0	0
„ pipes to building						774	0	0
„ pipes to reservoir						649	16	0
„ reservoir						2034	0	0
„ pipes from reservoir						2303	0	0
					£	6260	16	0
The above capital at 5 per cent. is					£	315	0	0
Less—The rent charge			£0	10	0			
Insurance			0	18	0			
Renewals, 1 per cent.			62	12	0			
Rates, at 5s. in the pound			50	0	0			
						114	0	0
							201	0 0
Net rateable value							£240	7 3

The land is at the rate of £5 per acre annual value. The machinery is contained in the buildings. I put the cottage at £12 per year; and the buildings, in consideration of the motive power in them, at £30.

Cross-examined by Mr. PRIDEAUX: I have not had any experience with water-works. I have had opportunities of considering the increased value of land by becoming part and parcel of water-works. The buildings in which the turbines are placed in themselves would not be worth more than £6 or £7 a year. It is a great square of buildings. I guess the motive power of the turbines.

Re-examined by Mr. STOCK: I had some experience in rating pipes in 1846. In the parish of Chiswick I was engaged by——

The CHAIRMAN: Never mind about Chiswick.

Re-examination continued: The buildings, apart from the use to which they are appropriated, are only worth about £6 or £7 a year; but I arrive at the increased value of £30 by allowing £2 per horse for the motive power.

Mr. COLLINS then briefly addressed the court on behalf of the appellants, and, after alluding to the remarks made by Mr. Stock in his opening speech, said the facts of the case lay in a nut-shell. The whole question seemed to be as to what additional value should be placed upon the works in question, and that value was for the court to decide. Mr. Hawksley had been called before them: he was a gentleman of eminence in his profession, who had gone through his valuation of the company's works item by item; and, having been connected with the company for some time, knew the value of each item. He (Mr. Collins) apprehended the question of compensation did not come into the value at all. The miller had been compensated—as it were, they washed his business away. The old buildings had been pulled down, and works erected for the water-works company. If the mill had not been pulled down, and no other works put up in its stead, the value of the land would only be 40s. per acre, whereas by being applied to the purpose of the company they were increased to 150 per cent. additional value. That was a very large sum upon the agricultural value of the land. He then entered into some details respecting Mr. Hawksley's valuation, and concluded by stating that the rateable value, as given by him, had not been contradicted by cross-examination, and that, therefore, his estimate was the real value of the works.

Mr. PRIDEAUX, on behalf of the appellants, said that according to the evidence of the other side the rateable value of the Weymouth Water-Works Company's works was £290, so that even was good evidence, at any rate, for raising the rating. Mr. Stock had stated, in his opening address, that the matter involved in this case was one which it was impossible for the court to arrive at. Supposing him to be right in this assertion, he (Mr. Prideaux) would say this, that that was a very strong reason why the court should hesitate before they interfered with the assessment which had been fixed by the committee, because that committee was, perhaps, of all parties and of all tribunals, in a better position to assess the value of property within their own knowledge and within their own jurisdiction. The committee consisted of persons specially selected for the purpose, and he contended, from the circumstances connected with the constitution of the body and the mode of their proceedings, that the Assessment Committee had the means of ascertaining the real rateable value under their consideration more completely, and in a more satisfactory manner, than even the tribunal of the Court of Quarter Sessions. That, however, was no reason why the Court of Quarter Sessions should not review their decision; but he respectfully submitted that the local knowledge of the committee was a strong reason why the Court of Quarter Sessions should not interfere, unless they saw that the decision of the committee was based on wrong conclusions. His friend, Mr. Stock, had said it was impossible for the court to arrive at a satisfactory conclusion of that sort. He agreed with him, and that it had better be left to the Assessment Committee. Rent had always been regarded as *primâ facie* evidence as to the gross rateable value of the property assessed. The court was probably aware of a case where a rent was paid by a railway company for a branch railway, which was proved *de facto* to be profitless, and it was then held that the rent paid by them was the rateable value of the property. He contended that Mr. Pyne had had no special knowledge and experience of property of the nature before the court which would enable him to arrive at a satisfactory conclusion to guide them in ascertaining the value of the property. He thought the court would doubt whether all the expenditure as given by the other side had been proved. He thought that Mr. Hawksley was desirous of giving as little information to the court as possible, and assuming his evidence to come up to the mark, he would ask the court to look at it. He had said that £7700 had been spent in works, and £4000 paid in compensation, making altogether £11,700. Taking this at 6 per cent. upon that as the gross estimated value, that would make £700, and even putting it at 4 per cent., which is a very low figure, it would give £460 rateable value—£60 more than the committee assessed the company at. He would now call the attention of the court to a few remarks of the judgment which was given in the Hampton case. There it was said that, so far as we are concerned at present, the great principle established by the case was acted upon before and was well known, which was that they could not rate land simply as land, but the land must be rated with regard to its particular constitution and condition, and that was its relation to adjoining property. He did not know how the court could put any other construction than that view, and what the court has to ascertain was this, looking at the land as part and parcel of the water-works, as connected with it, and as continuing to be connected with it, what was a fair sum which an hypothetical tenant would give for it, bearing in mind the return which he would get. The elements and facts of this case were very important. First, there was the construction of the spring. The court had not heard, nor did it appear, that there were any other springs in the neighbourhood which would answer the purpose of the company; but here they had a spring, which, he was bold to say, was invaluable to them, and which as a consequence tended to increase the value of their property. There was a supply so plentiful that, instead of having steam-engines to pump the water, they actually found that it could be efficiently pumped into the surface reservoir by a couple of turbines. He could not conceive any element in a case of this kind—one more calculated upon the true principle on which this case was to be decided—which was more likely to increase the value of the property, than its high elevation, which enabled the water company to supply the whole of the town and places adjacent with water by turbines instead of steam-engines. The elevation of the reservoir was also high—an important matter—the position of the surface reservoir good, and the whole of the supply was furnished by natural gravitation.

Mr. STOCK remarked that Mr. Hawksley had said that if he used steam-engines the first cost would have been greater, but there would have been a saving in the working expenses.

Mr. PRIDEAUX, in continuation, said he did not wish to misconstrue the evidence, but he would ask the court whether or not the company had not well incurred the expenses with which they had been assessed, by becoming possessed of this property, and whether a fair per centage upon the expenses was not a fair principle upon which to act in assessing the property upon the poor-rate. He thought he need not trouble the court by referring them to the judgment given in the case *The Queen v. The West Middlesex Water-Works*. After reading at some length extracts from cases, he begged most respectfully to impress upon the attention of the court the principle involved in the West Middlesex case as applied to the present. If the special value of this property with reference to water-works be taken into consideration, the manner in which the company were enabled to supply the whole of their customers in a sufficient and satisfactory manner, he did think it was impossible that the court could come to any other conclusion than that the sum in which they were assessed by the Assessment Committee, with their special knowledge of the property in the neighbourhood, was not one farthing higher than they ought to pay. He would make only one other observation with reference to his friend's evidence, and then he would state to the court the nature of the evidence which he (Mr. Prideaux) would lay before the court, leaving the case in their hands. He did not think—at least he knew—that this appeal would turn upon the soundness or unsoundness of the remarks he was about to make, or the testimony of Mr. Hawksley in what he was pleased to call a "renewal-fund." Whether it was called a renewal-fund or a sinking-fund, this was certain, that, with very slight exceptions indeed, the only materials which the company had required to repair their mains, when once properly laid—the investment would rather be an investment in the nature of——

The CHAIRMAN: You cannot put it at more than 1 per cent.

Mr. PRIDEAUX, in continuation, said he would call before the court several gentlemen, amongst them Mr. Ryde, one who had great experience in valuing water-works, and who had carefully examined this property. He would tell them that he was employed by the Assessment Committee originally to value the property in question in the parish of Preston. With regard to this special property, he would be able to tell them that the fair annual gross estimated rental of the house and garden was £20, and the rateable value £16. Of the engine-house and turbines, taking into consideration the increased value of the land thereby, £90 gross, £74 rateable. Of the reservoir, £120 gross, and £100 rateable. Of the springs, mains, and pipes, regarding them in the parish as unproductive, and not making any allowance for profits and losses, as £430 gross, and £350 rateable value: making the gross £660, and the rateable £540. The rateable value at which the company was assessed, and at which the parish were content to leave it, was only £400. That left so wide a margin that he trusted the court would feel that no case for appeal had been made out, and that they should not interfere with the assessment in the present case. He hoped that they would feel that his friend had failed to lay before them such a case as would justify them in interfering with it; but, on the contrary, say by their decision that the sum at which the company was assessed was fair and reasonable.

Mr. *Edward Ryde*, examined by Mr. FFOOKS.

I am a surveyor, and carry on business at Parliament Street, Westminster. I have been so engaged for several years. I am *not* vice-president to the Institute of Civil Engineers. I have been surveyor for a large number of gas companies in London. I have valued for the four largest gas companies in London within the past twelve months. I have been employed, with one exception, by all the railway companies in London in cases of rating. I was employed by the Assessment Committee of the union in which Preston is situated to make a valuation of the water-works property. I may here state that I do not know personally one of the committee. It was simply a business affair, for which I have not been paid, but hope to. For that purpose I came down and made my valuation, which was sent in to the committee. In making that valuation, I ascertained from Mr. Hawksley and Mr. Andrews the cost of the works, and the gross receipts and expenses of the company. I made my valuation of the whole of the property, and apportioned Preston in particular. The gross and rateable value of the company's property in Preston I estimate at £660 and £540 as follows:—

	Gross.	Rateable.
House and garden	£ 20	£ 16
Engine-house and turbines	90	74
Reservoir	120	100
Springs, mains	430	350
	£660	£540

I put the valuation at a low figure in order to avoid this appeal. I have seen the paper put in by Mr. Hawksley, but he makes more deductions for rates and taxes than I do. The spring rises at a point at a considerable elevation from any other property, by means of which high-pressure water can be got at Weymouth by natural gravitation, and without any expense. In ordinary cases the water has to be lifted. I was engaged some time since for Elliot and Watney, the great London brewers.

The CHAIRMAN: I think it will be as well to confine your remarks to this case only.

Mr. FFOOKS: It was a matter of great importance, and I think the witness can give some valuable evidence in reference to it which will be useful in this case.

Examination continued: In making my valuation I have had in view the receipts and working expenses of the company. I have made every deduction usually recognized in these cases, and I find the rateable value is £540.

Cross-examined by Mr. STOCK: The Assessment Committee employed me, but I do not know one of them. I put £16 rateable and £20 gross upon the house and garden, and they are not high sums. The garden is well stocked with fruit-trees. I am not aware that turbines are rateable. The company cannot carry on their business without them. The buildings of themselves would be of no value at all. The surface reservoir I put down at £120 gross and £100 rateable. To tell you the real truth, I do not know what "an hereditament" means, and therefore cannot say that running water is an hereditament. The water of itself is not rateable, but the land over which it flows is. All parts of the water-works are rateable, as also the places were the water is delivered. In this case, the land is improved by the presence of the water-works. In making the valuation of water-works property I ascertain the value in the whole of the parishes, and take care that in all the valuation shall bear a fair proportion to the others, so that in the aggregate the company shall not be rated beyond its fair value. The land through which the pipes pass does not belong to the company; they have merely a way-leave over it, which is a subject for rating. I do not distinguish in my estimate what portion is charged for the way-leave. If a water company can work their property by steam it is a great advantage. I cannot agree with Mr. Hawksley in all his details; and though a greater engineer than I am, I differ with him in thinking it is a disadvantage in having the water at so high an elevation.

Re-examined: I have not rated the water at all in my estimate, but have taken into consideration the value of the land by the water going over it.

Mr. FFOOKS said, after hearing Mr. Ryde's evidence, he did not know that it was necessary to call another witness.

The CHAIRMAN: You have had an excellent witness, and it is not desirable to gild a golden one.

Mr. PRIDEAUX said they had two other persons of eminence ready to give evidence, but in deference to his lordship's remarks he should not call them.

Mr. FFOOKS said he had only to make one or two remarks with reference to the observations made by Mr. Ryde. He considered that if they had tried anywhere in England they could not have got a person who was calculated to give such valuable knowledge as Mr. Ryde had afforded. They had heard that he had not only been employed by parishes, but by the appellants, to parish rating. He was not a civil engineer, but his special knowledge of these particular subjects was such that no man could give his testimony in a manner more calculated to impress the court with truthfulness than he had done. He had told them that in order to evade this appeal he had made his valuation at a low figure. If the court found that the Assessment Committee, after taking much trouble, had arrived at a correct estimate in valuing the property, they would feel they had a duty to perform which he was sure they would not shrink from doing, in saying that the respondents were entitled to the support of the court, according to the evidence which he had laid before them.

Mr. STOCK then replied on the whole case, and in doing so said he would dispense with the question of rating the turbines: and, using the words of the Hampton case, the property was to be rated as "mere lands and buildings, with fixtures and machinery attached." The meaning of these words was this, that the lands and buildings which were adapted for the purposes of that machinery were to be rated to an increased value, owing to their being fit and proper for the works. They could not in any way be charged twice over. The building had turbines in it, but it was not fair to rate the buildings as having been erected for that particular purpose. With respect to the water, what he contended was this, that the land was rateable, but that running water was not rateable *per se*. It was only where it was delivered that the water ought to be rated in an increased value, owing to the profit derived from the water. In reference to the compensation he observed that it was the misfortune of the company that they had to pay it, but that did not make any increase in the value of their works. Supposing the land when the company took it had been covered with buildings, that would not increase the value of their property. On the contrary, it would be a loss to them. The law seemed to be so clear upon the subject, that by arguing upon it he could not make it clearer. He maintained that they must take the real enhanced value of the buildings, pipes, and lands, after consideration of the penalties the company had to pay for them. He thought when the court came to consider the whole evidence, they would be of opinion that his friend had not established his case, and could not but say that the assessment was too high.

The court retired for a few minutes; and upon its return,

The CHAIRMAN said: The court has thought it right to make it clear that they have not taken into consideration the question of compensation as guiding them at all in the result to which they have arrived. They have determined to confirm the rate, each party paying its own costs.

Miscellaneous News.

MANCHESTER GAS SUPPLY.

At the last meeting of the Manchester City Council, the Gas Committee presented the following report:—

Revenue.

Your committee, in submitting the accounts of this department for the year ending 24th June last, have again the satisfaction to report an increase in the number of consumers, which now amounts to 43,850, as against 40,735 in the previous year, or 7·64 per cent., as also in the quantity of gas consumed, the latter having exceeded that of the previous year by 10·31 per cent. The rental for the past year (including meter-rents) amounts to the sum of £159,698. 1s. 9d., being an increase of £2567. 18s. 11d. upon the rental of the previous year, notwithstanding that the last reduction in the price has been in operation since the 25th December, by which the rental has been reduced by the sum of £11,041. 13s. 4d., as estimated in the last year's report.

The gross profit amounts to £56,432. 4s. 5d., as against £59,545. 18s. 9d. in the previous year, and is appropriated as follows:—Payment of interest, £13,086. 10s. 9d.; transferred to the capital account, towards the liquidation of the mortgage debt, £17,587. 0s. 11d.; and to be paid over for improvement purposes, £25,758. 12s. 9d., as against £27,847. 4s. 11d. last year.

Your committee submit, for the information of the council, the usual tabular statements.

Appendix A shows the amount of lamp and private rental derived from the townships within and beyond the city respectively, for the past two years.

Appendix B., the quantity of gas transmitted from the works in the day-time, and during the twenty-four hours in each month, for the years 1863-4, and 1864-5.

Appendix C, the number of meters in use on the 24th June, 1864, and 1865.

Appendix D, the main-pipes laid up to the 24th June, 1864, and those laid and taken up during the past year.

Appendix E, a statement showing the amount of the gross profit, and the mode of its appropriation, the amount of borrowed money owing, and the excess of assets, &c., from the year 1860 to the 24th June last.

Your committee also submit the following report of Mr. John Leigh, the consulting and analytical chemist to this department, in relation to the illuminating power and purity of the gas supplied during the past year:—

"*To the Chairman of the Manchester Gas Committee.*

"Sir—I have the honour to report to you that the average illuminating power of the gas during the past year has been equal to 21·28 sperm candles, consuming at the rate of 120 grains per hour, against 5 cubic feet of gas, deduced from daily photometric observations made by me at my residence in St. John's Street, and at the Rochdale Road gas station. During the same period the gas has been almost entirely free from sulphuretted hydrogen, the quantity in no instance exceeding a small fraction of a grain in 1000 cubic feet of gas, and there has been no sensible indication of its presence in the daily observations, except in very rare instances. The gas has been also very free from tarry matter, and from naphthaline. The ammonia in the gas has been very small in amount, being often below 3 grains in 1000 feet. It has averaged not more than 5 or 6 grains. The gas has been very clean and very pure, and is, I believe, not surpassed in this respect by any gas in the kingdom.

"I have the honour to be, sir, yours very respectfully,

"JOHN LEIGH, M.R.C.S.L.

"26, *St. John's Street, Manchester, Sept.* 22, 1865."

Extension of Works, Mains, &c.

The expenditure on capital account during the past year has amounted to the sum of £33,367. 18s., particulars of which are given in the statement of assets and liabilities.

The alterations and extensions at the Gaythorn station consist of the new retort-house, railway siding, and cannel-stores, covering over of the large tar-well, erection of new station-meter and governor-house, and the consequent rearrangement of the outlet-mains into the town from that station.

The new retort-house is completed, and the retort-stack for the same is in course of erection. The internal fittings and apparatus required in connexion therewith have so far as is at present necessary been contracted for, and their erection will shortly be commenced.

The siding in connexion with the South Junction and Altrincham Railway is completed, with the exception of fixing the weighing machine, and the erection of the machine-clerk's office, and staircase leading thereto, which will be proceeded with so soon as arrangements are concluded with the railway company.

The cannel-stores are completed, with the exception of the paving and asphalting of the floor, which are now being proceeded with.

The 80-feet diameter tar and ammonia water tank is completed and in use, and forms a most valuable acquisition to the works.

The new station-meter and governor house is completed, and a new station-meter, to measure 100,000 cubic feet per hour, has been erected therein. The governors and pressure-registers formerly in use have been refixed in the new house, and four additional ones erected, thus enabling all the mains leading from that station to be taken direct from the new house, and each to be supplied with gas by its respective governor. By this alteration the distribution of the gas will be effected with greater exactness, as regards the pressure required in particular districts, than has heretofore been practicable.

In the street-mains department, in addition to the important alterations in the outlet-mains from the Gaythorn station already referred to, your committee have found it necessary, to enable them adequately to meet the demand, to make considerable extensions in various districts, but more especially for the better supply of the rapidly increasing districts of Rusholme, Withington, and Cheadle (from whence the most numerous complaints of deficiency have been received), and for the supply of gas to the additional districts of Northenden and Gatley. For the latter purposes your committee have, after careful consideration, laid an additional main from Medlock Street, by way of Higher Cambridge Street, Lloyd Street, Greenheys, and Moss Lane East, into the several districts referred to, and of sufficient capacity to obviate the necessity for any enlargement thereof for many years hence.

Your committee would here remark, that the recent enlargement of the mains throughout the principal quarters of the city has enabled them to furnish during the past year a supply fully adequate to the demand in nearly every district, which heretofore they had not been able to accomplish.

Auditor's Report.

Your committee also submit the following report of Mr. William Aldred, who was appointed by the council the auditor of the accounts of this department, for the past year:—

"28, *Pall Mall, Manchester,*

"*Sept.* 22, 1865.

"*To the Gas Committee of the Corporation of Manchester.*

"Gentlemen,—I beg to report the completion of my audit of your books and accounts for the year ending June 24, 1865.

"My audit has included the examination of the collectors and other statements of cash received, also the bank pass books with the cash book; the examination of the Finance Committeee's authorities for cash payments and the vouchers for the same; also the checking of all the postings from the cash book, journal, and invoice book, to the personal and impersonal ledgers and the capital account.

"I have also compared the list of mortgage loans with the town-clerk's register, and have certified the correctness of the whole, including the profit and loss account, statement of receipts and expenditure on capital and revenue accounts, statement of assets and liabilities, and the general balance-sheet.

"I am, gentlemen, your most obedient servant,

"WILLIAM ALDRED, Auditor."

On behalf of the Gas Committee,

MATTHEW CURTIS, Chairman.

Gas Offices, York Chambers, King Street, Sept. 25, 1865.

Dr. *Profit and Loss Account, for the Year ending June 24, 1865.* *Cr.*

To Cannel				£71,065	8	7	
Retort men's wages				13,045	0	1	
Retorts, materials, and setting				6,251	5	8	
Purifying charges				3,168	18	3	
Labourers wages, and repairs, &c., of works—							
Gaythorn station	£2,350	8	4				
Rochdale Road station	3,778	3	5				
Street-mains	4,146	18	7				
				10,275	10	4	
Salaries—							
Thomas Peacock, in-door superintendent	£425	0	0				
John R. Macfarlane, manager, Gaythorn station	425	0	0				
Henry Lyon, manager, Rochdale Road station	300	0	0				
John Leigh, consulting chemist	250	0	0				
Thomas Rafferty, surveyor of street-mains	270	0	0				
Jonas Croft, chief clerk	240	0	0				
John Bardsley, chief meter inspector	216	0	0				
James Lee, clerk in rental-office	126	0	0				
Charles Headen, draughtsman, street-mains	110	7	7				
Richard G. Walker, clerk in rental-office	108	0	0				
Thomas C. Lever, inspector of fittings	96	0	0				
Charles Dobbs, ditto	90	0	0				
Samuel Robinson, clerk and collector of miscellaneous accounts (portion of year)	66	0	0				
Henry Larking, clerk and collector of miscellaneous accounts (portion of year)	20	0	0				
City surveyor (portion of salary)	100	0	0				
City treasurer (ditto)	100	0	0				
Wages of meter inspectors and assistants in rental and inquiry offices, at 30s. per week and under	2,803	14	6				
				5,746	2	1	
Collectors poundage, &c.—							
Philip Booth (portion of year)	£179	0	0				
John Ashcroft	220	1	0				
John T. Banks	180	8	6				
Charles Nickson	189	10	9				
James Whittaker	162	19	5				
William A. Nield	154	4	8				
Oswald Turner	163	10	9				
William Stubbs	142	7	1				
John Cocker	137	13	1				
Thomas E. Harley	150	4	8				
Henry Larking (portion of year)	100	0	0				
Andrew Drysdale, ditto	70	10	0				
Jabez Ashworth, ditto	43	8	0				
Samuel Robinson, ditto	22	5	4				
James Shaw, receiver of rentals paid in the office	216	0	0				
Jabez Ashworth, poundage on broken period rentals	16	16	3				
George H. Caldecutt, ditto	17	7	5				
John Hall, ditto	8	0	2				
George Whittaker, ditto	0	15	10				
				2,175	2	11	
Collection of arrears—							
Henry Larking	£18	11	4				
Samuel Robinson	15	6	9				
James Lee	1	11	5				
Richard G. Walker	1	11	5				
				37	0	11	
Chief and other rents and taxes—							
Chief rents	£284	7	3				
Rates, rents, and taxes on offices, and on arches used as stores	484	13	9				
Rates on stations and street-mains	3,314	10	8				
				4,083	11	8	
Income-tax				1,536	10	3	
Amount transferred to capital account for depreciation of works—							
Gaythorn station—							
4 per cent. on buildings (£52,571. 3s. 5d.)	£2,102	16	11				
5 per cent. on apparatus (£24,616. 18s. 8d.)	1,230	16	11				
	£3,333	13	10				
Rochdale Road station—							
4 per cent. on buildings (£70,389. 6s. 11d.)	£2,811	11	5				
5 per cent. on apparatus (£40,381. 17s. 4d.)	2,019	1	10				
	4,830	13	3				
Every Street station—							
4 per cent. on buildings (£107. 11s. 11d.)	4	6	0				
Street-mains store (Poland Street)—							
4 per cent. on buildings (£2,001. 2s. 5d.)	£80	0	10				
5 per cent. on apparatus (£627. 18s. 7d.)	31	7	11				
	111	8	9				
Street-mains—							
2½ per cent. on main-pipes (£165,194. 12s. 6d.)	4,129	17	3				
Hired meters and fittings—							
10 per cent. on £6,201. 1s. 1d.	620	1	1				
Meter-proving apparatus—							
10 per cent. on £202. 13s. 7d.	20	5	4				
				13,050	6	6	
Stationery and advertising				323	4	0	
Law stationery, receipt, postage, and deed stamps, &c.				116	6	6	
Clothing for inspectors, &c.				250	3	0	
Subscriptions to Infirmary, Eye Hospital, Steam Boiler Association, &c.				67	10	0	
Miscellaneous expenses				283	12	5	
Commission, &c., charged by bankers (less interest)				114	19	8	
Bad debts and allowances				781	13	5	
Balance carried down				56,432	4	5	
				£188,804	10	8	

By Gas-rental—							
Within the city—							
Private consumers	£124,654	13	4				
Meter-rents	852	12	4				
Public lamps	8,654	11	9				
				£134,161	17	8	
Beyond the city—							
Private consumers	£23,447	18	3				
Meter-rents	156	12	11				
Public lamps	1,931	12	11				
				25,536	4	1	
				£159,698	1	9	
Coke, tar, and ammonia-water				29,106	8	1	
				£188,804	10	8	

To Interest on loans, &c. (less income-tax)				£13,086	10	9	
Amount transferred to capital account towards liquidation of mortgage debt				17,587	0	11	
Surplus payable to the improvement department				25,758	12	9	
				£56,432	4	5	

By Balance brought down, being gross profit on the year's working				£56,432	4	5	
				£56,432	4	5	

Dr. *General Summary of Receipts and Expenditure on Capital and Revenue Account, June 24, 1865.* *Cr.*

To Balance in the bank, June 24, 1864			£21,686	18	6		
Ditto in the treasurer's hands, June 24, 1864			176	10	0		
Ditto owing to the bank, June 24, 1865			8,911	7	7		
Ditto of sums owing to and by the committee, including stocks on hand, June 24, 1864			45,806	3	1		
						£76,580	14 2
Balance of profit and loss account, June 24, 1865, as per statement						25,758	12 9
Loans received						11,072	5 5
Amount transferred from revenue account—							
For depreciation of works						13,050	6 6
For liquidation of mortgage debt						17,587	0 11
						£144,048	19 9

By Loans repaid						£39,950	0 0
Improvement and Chorlton-upon-Medlock Committees—							
Surplus for the year ending June 24, 1864						27,847	4 11
Expenditure on capital account, viz.:—							
Gaythorn station	£16,685	3 3					
Rochdale Road ditto	918	10 8					
Street-mains store	260	5 4					
Street-mains	11,786	3 3					
Service-pipes	1,223	6 3					
Hired meters	2,494	4 3					
						33,367	18 0
Balance in the treasurer's hands, June 24, 1865						53	5 9
Ditto of sums owing to and by the committee, including stocks on hand, June 24, 1865						42,830	11 1
						£144,048	19 9

Statement of Assets and Liabilities, June 24, 1865.

PERMANENT ASSETS.

Lower King Street station—							
Land (now let to the Watch Committee, at an annual rent of £300)						£7,500	0 0
Gaythorn station—							
Land, building, and apparatus, as per last report—							
Land	£55,435	6 10					
Buildings	52,728	5 9					
Apparatus	24,459	16 4					
			£132,623	8 11			
Less—							
Depreciation			3,333	13 10			
			£129,289	15 1			
One year's outlay to June 24, 1865—							
Yard-mains	£ 145	16 6					
New purifying-house	28	14 8					
New cannel-stores, retort-house, &c. (on account)	10,712	18 5					
New meter and governor house (on account)	5,797	18 8					
			16,685	8 3			
						145,975	3 4
Rochdale Road station—							
Land, buildings, and apparatus, as per last report—							
Land	£29,755	17 5					
Buildings	70,018	4 2					
Apparatus	40,653	0 1					
			£131,427	1 8			
Less—							
Depreciation			4,830	13 3			
			£126,596	8 5			
One year's outlay to June 24, 1865—							
Yard-mains	£ 269	7 11					
No. 2 retort-house	254	12 2					
Large chimney	30	19 6					
Cannel waggon-hoist	88	8 8					
No. 2 exhauster	194	17 1					
New pumps	80	5 4					
			918	10 8			
						127,514	19 1
Every Street station—							
Land and buildings, as per last report—							
Land	£3,090	1 0					
Buildings	107	11 11					
			£3,197	12 11			
Less—							
Depreciation			4	6 0			
						3,193	6 11
Street-mains store (Poland Street)—							
Land, buildings, and apparatus, as per last report—							
Land	£1,406	0 0					
Buildings	2,001	2 5					
Apparatus	627	18 7					
			£4,035	1 0			
Less—							
Depreciation			111	8 9			
			£3,923	12 3			
One year's outlay to June 24, 1865—							
Buildings	£ 250	13 10					
Apparatus	9	11 6					
			260	5 4			
						4,183	17 7
Street-mains—							
Main-pipes, as per last report	£165,194	12 6					
Less—							
Depreciation	4,129	17 3					
			£161,064	15 3			
One year's outlay to June 24, 1865			11,786	3 3			
						172,850	18 6
Service-pipes—							
Service-pipes laid, as per last report			£10,366	6 3			
Moiety of year's outlay charged to capital account			1,223	6 3			
						11,589	12 6
Hired meters, &c.—							
Outlay, as per last report	£6,201	1 1					
Less—							
Depreciation	620	2 1					
			£5,580	19 0			
One year's outlay to June 24, 1865			2,494	4 3			
						8,075	3 3
Meter-proving apparatus—							
Outlay, as per last report			£ 202	13 7			
Less—							
Depreciation			20	5 4			
						182	8 3
Total amount of permanent assets						£481,065	9 5

FLOATING ASSETS.

Cannel, retorts, and other materials on hand—							
Revenue account			£24,093	11 0			
Gas-rents, and sundry accounts due to the committee—							
Revenue account			31,511	16 5			
Extension account			480	5 3			
Balance in the treasurer's hands			53	5 9			
						56,138	18 5
						£537,204	7 10
Excess of assets, June 24, 1865						£180,598	3 9
Excess of assets, June 24, 1864						163,011	2 10
Increase, being the amount charged upon the profit for the past year towards liquidation of the mortgage debt, and carried to capital account						£17,587	0 11

LIABILITIES.

Mortgage debt—							
Act of 1844—1st charge	£ 52,230	0 0					
Ditto—2nd ditto	38,747	18 4					
Ditto of 1853	400	0 0					
Ditto of 1854	56,810	0 0					
Ditto of 1858	147,385	2 4					
Total amount secured by mortgage			£295,573	0 8			
Sums advanced, not secured by mortgage at this date—							
Indian Relief-Fund Committee	£7,000	0 0					
Burial Board Fund	3,000	0 0					
Admiral Duff's Charity	1,058	1 6					
Sundry persons	300	0 0					
			11,358	1 6			
						£306,931	2 2
Purchase of land, the purchase-money being left in the hands of the corporation, at interest						1,750	0 0
Sundry accounts owing—revenue account			£9,699	6 11			
Ditto ditto—extension account			1,692	3 9			
						11,391	10 8
Deposits in hand						1,863	10 11
Balance owing to the bank						8,911	7 7
						£330,847	11 4
Surplus for the year ending June 24, 1865, payable to the improvement department						25,758	12 9
Balance, being excess of assets						180,598	3 9
						£537,204	7 10

[APPENDIX A.]

Statement of the Lamp and Private Rental (including Meter-Rents) derived from the Townships within and beyond the City respectively, for the Years 1863-4 and 1864-5.

	Half Year ending Dec. 25, 1863.	Half Year ending June 24, 1864.	Total for the Year 1863-4.	Half Year ending Dec. 25, 1864.	Half Year ending June 24, 1865.	Total for the Year 1864-5.
Within the city.	£. s. d. £. s. d.	£. s. d. £. s. d.	£. s. d.	£. s. d. £. s. d.	£. s. d. £. s. d.	£. s. d.
Township of Manchester—						
Private rental	39775 18 0	40115 18 2		37660 19 10	41346 11 10	
Public lamps	2523 16 11	2279 4 11		2533 7 6	2281 5 5	
	42299 14 11	42395 3 1	84694 18 0	40194 7 4	43627 17 3	83822 4 7
Other townships—						
Private rental	22907 16 6	22854 17 9		22244 13 7	24255 0 8	
Public lamps	1907 3 5	1886 1 11		1917 15 0	1922 3 10	
	24814 19 11	24740 19 8	49555 19 7	24162 8 7	26177 4 6	50339 13 1
Total within the city	67114 14 10	67136 2 9	134250 17 7	64356 15 11	69805 1 9	134161 17 8
Beyond the city.						
Private rental	10543 11 8	10561 6 10		11567 15 11	12036 15 3	
Public lamps	867 15 6	906 11 3		935 7 10	996 5 1	
Total beyond the city	11411 7 2	11467 18 1	22879 5 3	12503 3 9	13033 0 4	25536 4 1
Gross rental	78526 2 0	78604 0 10	157130 2 10	76859 19 8	82838 2 1	159698 1 9

	Within the City.	Beyond the City.	Total.
Gross rental, 1863-64	£134,250 17 7	£22,879 5 3	£157,130 2 10
Ditto, 1864-65	134,161 17 8	25,536 4 1	159,698 1 9
	Decrease. £ 88 19 11	Increase. £2,656 18 10	Increase. £2,567 18 11

[APPENDIX B.]

Comparative Statement of the Quantity of Gas transmitted from the Works, in the Day-time and during the Twenty-four Hours, for the Years 1863-4 and 1864-5.

	Day-time.			Twenty-four Hours.		
	1863-64.	1864-65.	Inc. or Dec.	1863-64.	1864-65.	Increase.
			Per cent.			Per cent.
July	6,388,000	6,626,000	3·72 Inc.	33,944,000	39,107,000	15·21
August	7,654,000	8,040,000	5·04 ,,	44,430,000	49,609,000	11·65
September	9,601,000	10,691,000	11·21 ,,	62,455,000	69,097,000	10·63
October	12,866,000	12,250,000	4·78 Dec.	96,469,000	100,913,000	6·82
November	16,449,000	18,846,000	14·57 Inc.	119,835,000	132,716,000	10·74
December	23,334,000	29,210,000	25·18 ,,	138,652,000	156,992,000	13·22
January	25,175,000	27,805,000	10·44 ,,	133,103,000	151,019,000	13·46
February	*18,271,000	20,823,000	13·96 ,,	109,465,000	118,557,000	8·30
March	13,118,000	16,154,000	23·14 ,,	88,509,000	98,178,000	10·92
April	9,778,000	9,932,000	1·57 ,,	60,942,000	63,909,000	4·86
May	7,869,000	10,142,000	28·88 ,,	45,851,000	51,246,000	11·76
June	7,405,000	7,198,000	2·79 Dec.	36,476,000	38,897,000	6·63
Total	157,908,000	177,717,000	11·91 Inc.	970,131,000	1,070,240,000	10·31

* One extra day, this being Leap-year.

[APPENDIX C.]

Table showing the Number of each Size of Meter in use on the 24th of June, 1864 and 1865, including those on Hire.

Size of Meter.	Townships within the City.														Townships beyond the City.		Total.		Increase.	Decrease.
	Manchester.		Chorlton-upon-Medlock.		Hulme.		Ardwick.		Beswick.		Cheetham.		Total within the City.							
	1864.	1865.	1864.	1865.	1864.	1865.	1864.	1865.	1864.	1865.	1864.	1865.	1864.	1865.	1864.	1865.	1864.	1865.		
1 light	115	118	19	15	57	48	21	22	5	4	9	5	226	212	5	12	231	224	..	7
2 lights	7267	8073	2410	2604	4614	5049	918	1789	297	323	1404	1475	16910	19313	3270	3748	20181	23061	2880	..
3 ,,	4642	4678	1672	1787	1934	2059	1203	516	52	51	928	954	10431	10045	1371	1537	11802	11582	..	220
5 ,,	2240	2254	878	925	401	421	189	192	20	19	458	469	4186	4280	835	913	5021	5193	172	..
10 ,,	1128	1172	200	243	100	109	65	55	8	10	93	116	1594	1705	308	332	1902	2037	135	..
20 ,,	537	567	44	60	32	35	21	25	3	3	28	31	665	721	112	132	777	853	76	..
30 ,,	209	211	15	14	11	12	3	5	2	1	18	19	258	262	34	41	292	303	11	..
45 ,,	71	68	4	4	4	5	4	3	..	..	..	..	83	80	8	8	91	88	..	3
50 ,,	65	78	5	7	2	4	3	6	2	3	3	4	80	102	15	24	95	126	31	..
60 ,,	62	64	1	8	6	7	2	2	2	2	1	1	74	84	6	9	80	93	13	..
80 ,,	57	54	5	5	4	4	1	2	..	..	..	..	67	65	4	6	71	71	..	..
100 ,,	100	106	10	11	5	6	3	4	1	1	5	5	124	133	16	19	140	152	12	..
150 ,,	22	28	3	4	3	4	1	1	..	..	..	1	29	38	2	1	31	39	8	..
200 ,,	4	6	..	..	1	2	..	..	..	..	3	3	8	11	2	4	10	15	5	..
250 ,,	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	1	..
300 ,,	7	8	1	1	..	1	..	..	1	1	1	1	10	12	2	..	12	12	..	..
Total	16526	17486	5267	5688	7174	7766	2434	2622	393	418	2951	3084	34745	37064	5990	6786	40735	43850	3344	230

Deduct decrease 230

Net increase = 7·64 per cent. 3114

Statement showing the Number and Sizes of Meters on Hire on June 24, 1865 (included in the preceding Table).

	1 Light.	2 Lights.	3 Lights.	5 Lights.	10 Lights.	20 Lights.	30 Lights.	50 Lights.	60 Lights.	150 Lights.	200 Lights.	Total, 1865.	Total, 1864.	Increase.
Within the city	2 2	3677	574	136	32	6	1	..	1	1	1	4641	3604	1037
Beyond the city	12	627	167	30	6	..	..	..	..	..	..	842	512	330
Total	224	4304	741	166	38	6	1	..	1	1	1	5483	4116	1367

[APPENDIX D.]

Pipes Laid and Taken up during the Year ending June 24, 1865.

Laid.	Diam. 2 in.	Diam. 3 in.	Diam. 4 in.	Diam. 5 in.	Diam. 6 in.	Diam. 8 in.	Diam. 9 in.	Diam. 10 in.	Diam. 12 in.	Diam. 14 in.	Diam. 15 in.	Diam. 18 in.	Diam. 24 in.	Diam. 30 in.	Total Length.
	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Within the city—															
Manchester	3193	1033	156	177	1046	..	144	..	35	..	..	..	..	..	5784
Hulme	1840	..	456	..	21	..	..	..	15	..	..	..	165	712	3209
Chorlton-upon-Medlock	2251	183	668	..	..	..	..	..	344	..	..	..	917	54	4417
Cheetham	600	..	..	150	20	152	326	..	112	..	..	..	..	..	1360
Ardwick and Beswick	880	305	..	..	..	..	..	..	148	..	..	..	..	..	1333
	8764	1521	1280	327	1087	152	470	..	654	17	..	..	1082	766	16103
Beyond the city	8236	3867	3684	171	902	5834	2097	65	1872	..	37	682	315	..	27779
Total	17000	5388	4964	498	1989	5986	2567	65	2526	17	37	682	1397	766	43882
Taken up.															
Within the city	1134	1105	410	394	308	..	105	..	..	..	..	..	..	..	3456
Beyond the city	408	1160	213	..	38	..	190	..	..	..	..	..	..	..	2009
Total	1542	2265	623	394	346	..	295	..	..	..	..	..	..	..	5465

Net increase during the year . 38417 yds.

Summary.

	Diam. 2 in.	Diam. 3 in.	Diam. 4 in.	Diam. 5 in.	Diam. 6 in.	Diam. 7 in.	Diam. 8 in.	Diam. 9 in.	Diam. 10 in.	Diam. 12 in.	Diam. 14 in.	Diam. 15 in.	Diam. 16 in.	Diam. 18 in.	Diam. 20 in.	Diam. 24 in.	Diam. 30 in.	Total Length.
Pipes laid, up to June 24, 1864—	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.	Yds.
Within the city . . .	136947	114545	35927	15750	22257	756	13234	11635	1241	19329	6073	5634	1050	3194	388	5125	66	393141
Beyond the city . . .	45105	34422	21506	5955	13167	410	11049	8681	264	7975	..	..	..	..	..	..	..	148534
Pipes laid during the year ending June 24, 1865—	182052	148967	57433	21705	35424	1166	24273	20316	1505	27304	6073	5634	1050	3194	388	5125	66	541675
Within the city . . .	8764	1521	1280	327	1087	..	152	470	..	654	..	..	..	..	..	1082	..	16103
Beyond the city . . .	8236	3857	3684	171	902	..	5834	2097	65	1872	17	37	..	682	..	315	766	27779
	199052	154355	62397	22203	37413	1166	30259	22883	1570	29830	6090	5671	1050	3876	388	6522	832	585557
Deduct taken up .	1542	2265	623	394	346	..	..	295	..	..	..	..	..	..	..	..	..	5465
Net total	197510	152090	61774	21809	37067	1166	30259	22588	1570	29830	6090	5671*	1050	3876	388	6522	832	580092*

* Total, 580,092 yards, or 329½ miles and 172 yards.

[Appendix E.]

Statement showing the Amount of Gross Profit, and the Mode of its Appropriation: also the Amount of Borrowed Money Owing, and the Excess of Assets, &c., from the Year 1860 to the present Date.

Year ending June 24.	Gross Profit.	Maximum Price of Gas, per 1000 Feet, within the City.	Appropriation of Gross Profit. Interest.	Liquidation of Mortgage Debt.	Surplus.	Appropriation of Surplus. Improvement Purposes.	Water-Works Committee.	Borrowed Money Owing.	Amount charged to Revenue in respect of Depreciation of Works and Mains.	Excess of Assets.
	£. s. d.	s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
1860. .	64779 14 10	Half year . . 5 0 ,, . . 4 6	16255 12 4	13306 5 6	35217 17 0	17608 18 6	17608 18 6	366175 8 4	5000 0 0	88280 7 2
1861. .	51825 0 1	Half year . . 4 6	16098 5 3	18980 3 0	16746 11 10	8373 5 11	8373 5 11	379603 0 8	11372 5 0	107260 10 2
1862. .	42667 7 1	,, . . 4 0	15482 3 2	19830 14 4	7854 9 7	7854 9 7	....	382539 7 10	12179 4 11	126591 4 6
1863. .	55804 12 9	Half year . . 4 0 ,, . . 3 9	14932 17 8	18609 17 4	22261 17 9	22261 17 9	....	362877 8 10	12666 18 11	145201 1 10
1864. .	59545 18 9	Half year . . 3 9 ,, . . 3 6	13888 12 10	17810 1 0	27847 4 11	27847 4 11	....	335808 16 9	12690 12 9	163011 2 10
1865. .	56432 4 5	Half year . . 3 6 ,, . . 3 2	13086 10 9	17587 0 11	25758 12 9	25758 12 9	....	306931 2 2	13050 6 6	180598 3 9

MALTA AND MEDITERRANEAN GAS COMPANY, LIMITED.

An Extraordinary General Meeting of the Proprietors of this Company was held at the Office, No. 60, Gracechurch Street, on Wednesday, November 15—W. Nicol, Esq., in the chair—for the purpose of considering, and, if deemed expedient, adopting a proposition for lighting with gas the towns of Trapani and Marsala, in Sicily.

Mr. E. P. Rowsell (the secretary) having read the advertisement convening the meeting,

The Chairman said the proposition which he had to submit was not entirely a new one. The directors had for some time past considered it advisable, if they could accomplish it, to extend the operations of the company in the Mediterranean. Several proposals had been made for carrying out that object, but one insuperable difficulty always presented itself. The company started with a capital that was insufficient for the undertakings they first had in hand, and they had throughout found themselves crippled through that insufficiency. It was, therefore, of little use to undertake new schemes until they saw their way to the completion of those for which they had made themselves responsible. But, during the present year, Mr. Hodgson Jones, their engineer, was in Sicily on other business, and he took the opportunity of visiting the towns it was now proposed to light. When the matter came before the board they felt that they could not take it up in the form suggested, knowing that the shareholders had not materially assisted them when funds were needed for the works at Malta and Corfu. It would be recollected that a meeting was held some time back to authorize the raising of capital by the issue of 6 per cent. debentures to the extent of £30,000. Those debentures were not taken up as they should have been, and even to the present time less than £5000 worth had been issued. But the directors had incurred serious liabilities in respect to the works already in hand, and had been compelled to borrow a sum of £10,000 from the bankers upon their own responsibility. It was then proposed to the shareholders to issue 7 per cent. preference shares, and seeing that the company was in a position to secure the interest upon those shares, the directors thought these would certainly be taken up. But such was not the case; less than a moiety of the number authorized were allotted, and of these he (the chairman) and his partner took nearly one-half. With the £3000 thus obtained the directors reduced their debt to the bank, but at the present moment they owed the bankers about £7000. A proposal had now been made to the board, through Mr. Hodgson Jones, by parties of the highest respectability, to relieve them of the balance of those preference shares, and to undertake the construction of the necessary works at Marsala and Trapani upon terms which they considered extremely fair. The shortest way, perhaps, of bringing the matter before the meeting would be for the secretary to read the terms of the proposal which had been made to them.

The Secretary accordingly read the proposal, which was from Messrs. Hanna, Donald, and Wilson, to the following effect:—They offered to apply for the whole of the unallotted 7 per cent. preference shares of the company, and to erect the necessary buildings, and to supply all the iron-work, mains, street-lamps, and services specified and shown on drawings and specifications prepared by Mr. Hodgson Jones, for lighting the towns of Marsala and Trapani, and to hand over to the company, free of any extra expense, the concessions for lighting those two towns, on receiving from the company the sum of £27,500, payable in 6 per cent. mortgage debentures as the works proceeded, at the rate of 75 per cent. against shipments, the remainder during erection, less £5000 to be retained for six months after completion of the works to the satisfaction of the engineer, or any other competent party appointed to examine the same. They also offered to pay interest at the rate of 6 per cent. per annum on the amount expended during the construction of the works—say for eighteen months from the period of signing the contract.

The Chairman said the directors had satisfied themselves that the parties from whom the offer came, who were well known in the trade, were of the highest respectability and quite capable of carrying out their undertaking. The proposal had this great advantage, to begin with—that it would relieve them of the unallotted 7 per cent. preference shares. It also enabled them at once to accept the concessions for lighting Trapani and Marsala, upon terms which appeared fair and reasonable. It was not to be expected that these gentlemen would undertake the construction of the works upon credit without some increase of charge; but the directors had had their estimate tested by Mr. Jones, and had no reason to complain of the prices put down. They had obtained from those gentlemen a further offer, which was that for twelve months after the completion of the works they would allow 4 per cent. upon the £27,500, so that for that period the interest upon the debenture debt would be reduced to 2 per cent. After a careful consideration of the matter, the directors resolved to lay the proposal before the shareholders and to recommend it to their acceptance.

The Secretary then read the following report of Mr. Hodgson Jones on the subject:—

26, *Great George Street, Westminster.*

Gentlemen,—In the spring of the present year, having to visit Sicily for the purpose of reporting to the promoters of a proposed company as to the eligibility of certain towns, concessions for the lighting of which were offered, I availed myself of the opportunity to visit and examine a couple of towns not included in their programme, concessions for which had been obtained by other parties, who had proposed them to me for sale.

These towns were Trapani and Marsala. On my visit, I found that the date for making the necessary deposite had lapsed, and that the municipalities were about advertising for other tenders. I thereon instructed the Sicilian agents of the proposed company at Palermo to secure the concessions on my behalf and in my name, undertaking myself to pay their commission and to advance the necessary funds for caution-money, payment of Government taxes, and purchase of sites for works. This I have since done, and have in my hands notarial copies of both concessions.

The towns are twenty miles apart, connected by a good post road, and, both being seaports, with good harbours, there is easy communication between them, as also with this country, for the supply of coals.

The concessions are exclusive, and are granted for the undermentioned terms, viz.:—

Trapani, 30 years . . .	Population	31,000 inhabitants.
Marsala, 40 ,, . . .	,,	30,000 ,,
	Total . .	61,000 inhabitants.

In both cases, at the expiration of the terms of the concession, the works, &c., are to be purchased at a valuation by the respective municipalities, or the durations of the concessions are to be extended.

A ready sale for coke may be anticipated, as it is at present imported for the purpose of lime-burning and use in the surrounding districts. The present price of coke is £2 a ton; and although this price could not be obtained when a larger quantity would be available, still it is an earnest of a ready sale, and a remunerative one, of this product.

Both towns being built within fortifications, the length of mains required is remarkably small, viz.:—Trapani requiring 5 miles, Marsala requiring 4¼ miles.

At a low estimate, based on the actual working of the Valetta works, the annual profit would be about £3500.

Responsible parties having offered to construct the works to my specifications and drawings, and to repay the expense of obtaining both concessions, for a sum of £27,500, payable in debentures at 6 per cent., redeemable in five years, or, should the company so elect, in three years.

I strongly advise the Malta and Mediterranean Gas Company extending their operations to these towns, thereby facilitating the direction of their existing works at a reduced proportionate expenditure.

(Signed) Hodgson Jones.

The Chairman said upon receiving this report, and the undertaking of Messrs. Hanna, Donald, and Wilson, the directors had considered the matter in a favourable light, and now submitted it to the proprietors. The first advantage arising from its acceptance would be to relieve the company from an intolerable load of pecuniary difficulty, which they were now labouring under through liabilities incurred in completing their works at Corfu and Malta. The second advantage was that by enabling them to extend their operations, they would be spreading their London expenses over a wider area of operations. The company required an establishment in London, and however economically that establishment was managed, the expenses were very large for a small undertaking. The superintendent at Malta could frequently be spared to visit the new works, to see that they were properly carried out, the distance between the stations not being very great.

Mr. Hodgson Jones, in reply to an inquiry, said the cost of coals put

down in the estimate he had made was 30s. per ton delivered at the stations, and the price to be charged for gas was 10s. 6d. per 1000 cubic feet. Return cargoes were to be obtained at Marsala and Trapani, sufficient to induce parties to go there with coal. From Trapani there was a great export of salt to the north of Europe, and from Marsala there was a considerable trade in wine.

Mr. AYRES said he thought the notice which had been sent out convening the meeting was very meagre, if it was intended by the directors to ask a vote from the shareholders on that occasion. Had the substance of the chairman's statement been embodied in a short report and circulated previously, the shareholders would now be in a position to form an opinion as to the feasibility of the projected undertaking. Looking at the position of the company, they ought not now to be asked to go into any new adventure; and if a motion was made to sanction such a proposal, he intended to move an amendment postponing its consideration.

The CHAIRMAN said the directors had been trying to put their house in order, but, unfortunately, they had not been supported by the shareholders. Of the £30,000 of debentures which they were authorized to issue they had not succeeded in disposing of one-sixth, and a portion of that had only been applied for during the last week or two, since the new undertaking came under discussion; while of the 7 per cent. preference shares they had only been able to get less than one-fourth subscribed.

Mr. AYRES said no doubt the shareholders were indebted to the board for their efforts to carry on the concern, but he did not think they need be surprised at the lukewarmness of the shareholders, seeing how meagre were the statements which had been put before them. Such information as they did get was not circulated until they came to the meetings, so that they were not in a position to express an opinion upon the policy of the directors.

The CHAIRMAN, in reference to the suggested amendment, said he was almost afraid delay meant defeat. He was quite ready to give the shareholders all the information in his power, and though he should very much regret the postponement of a decision on the proposal, he was convinced the more the matter was inquired into the more expedient would it be found under the circumstances in which the company were placed.

Mr. KING said he thought the information which had now been given was quite sufficient, and that the shareholders were fully competent to come to a decision upon the project at once. If the directors had issued a circular explaining all the facts which had now been stated, it would scarcely have been necessary to call a meeting at all. With regard to the position of the company, all the difficulties they had to encounter arose from the circumstance that the original estimate for the work to be effected was wrong. It was said that £60,000 would be amply sufficient, and persons readily subscribed towards that, because there was a large amount of deferred capital held by the vendors of the concession and works. He could not understand how it was that such an error was made in the first instance.

Mr. HODGSON JONES replied that the works at Corfu were not contemplated when the company started. The Malta works exceeded the estimate, but that was explained by the fact that it was subsequently considered advisable to increase No. 2 station. The benefit of that increase was now being realized, for if the company had not laid capacious mains at the outset, they would now have to do so. They had a large guaranteed consumption there, the contract being signed with the authorities for lighting the barracks, dockyard, and naval hospital; and about 150 new street-lamps were being fixed.

Mr. KING said he understood that £27,500 would be sufficient for the erection of the works at Marsala and Trapani, and that the profit anticipated was £3500 per annum, or more than 12 per cent.

Mr. HODGSON JONES said the £27,500 would not cover the whole expense of carrying on the works, but he thought £30,000 or £32,000 would do so, including working capital, so that they would pay 10 per cent.

Mr. KING said that would relieve the company of all its difficulties at once, so that he thought there could be no two opinions as to the mode of dealing with this question.

Mr. AYRES said he could not at all see how the extension of their liabilities could relieve them from present pecuniary difficulties.

The CHAIRMAN replied that the proposal would enable them to dispose of the whole of the remaining 7 per cent. preference shares, which was all they needed to relieve them from their embarrassments.

The Rev. Mr. CLISSOLD still felt that it was only a postponement of their obligations. Mr. Jones had based his calculations, as to the profits that the new works would yield, upon the actual working of the Valetta works; but it rather seemed as if he ought to have taken Corfu.

Mr. HODGSON JONES said the working at Valetta was not taken as a profitable working, and if the new works succeeded, as he believed they would, the earnings would certainly be more than he had put down in his estimate. The lighting at Valetta had been carried on under very disadvantageous circumstances, which, however, had now been overcome, and he anticipated that the future consumption would be unexceptionably good. It was now equal, upon the same mileage of mains, to the consumption of some London companies five years ago.

Mr. AYRES hoped the suggestion for a postponement of a decision on the proposal would be agreed to. Some personal friends of his on the Stock Exchange, who held about a thousand shares, could not be present that day, and they ought to have an opportunity of considering the matter. He certainly felt that the history of the company offered very little inducement to the shareholders to undertake anything fresh. But if, as the chairman stated, they were now going on satisfactorily, it was not necessary they should trouble themselves with fresh concessions.

The CHAIRMAN said although, as far as the works were concerned, they were going on satisfactorily, it must not be forgotten that the company were largely in debt, and the directors found themselves unequal to meet the liabilities. This was one mode of relieving themselves, and, as the largest shareholder by far in the undertaking, he might say that he was convinced of the expediency—in fact, he ought to say of the necessity—of getting other assistance than the shareholders could give the company. The directors had nothing to complain of, except the want of efficient support.

Mr. HODGSON JONES reminded the meeting that the company had been paying dividends out of the profits of one work upon the capital invested in three stations. At one of the early meetings of the company he was asked whether he thought any profit would be made the first twelve months, and he replied no. But though twelve months had hardly elapsed, there had been a small profit earned, and they had been able to pay a dividend upon the capital expended upon undeveloped works.

Mr. AYRES said the more he heard the more convinced he was of the propriety of adjourning the meeting, and having a report circulated among the proprietors. Hitherto all the information they could get was of a far from cheering character; but if the facts stated by the engineer as to the profitable results of the working of the first station were laid before the shareholders, they might be disposed to come forward and take up the preference shares. If the new undertaking was a desirable one—and he supposed it was, from the offer which had been made—the shareholders would not care to part with the best half of the loaf. It was not to be supposed that the contractors would be willing to go into it without they saw their way clear to a profit on the outlay, which it was as well the shareholders should endeavour to retain.

Mr. RHODES made several inquiries respecting the terms of the proposed contract with Messrs. Hanna, Donald, and Wilson, which were replied to by the chairman and secretary. He agreed with the previous speakers, that an adjournment was desirable.

Mr. LAMBERT urged that the proposal ought to be at once accepted, as it offered the means of extending the business of the company without increasing their expenses, and therefore must be advantageous. He could not understand upon what ground the objection to it rested. The engineer stated that they would realize 10 per cent. by the undertaking. If so, they were adding something like 3 per cent. to their Malta fund, and the tendency would be, in the course of two or three years, to equalize the capital upon the whole concern. They had already a very efficient staff—they only wanted more business, and that business was now within their reach without increasing their expenditure.

After a long conversation, in the course of which the chairman again referred to the present critical position of the company's affairs, and the necessity for some decided action on the part of the shareholders.

The CHAIRMAN moved a formal resolution approving the scheme for lighting the towns of Marsala and Trapani, and authorizing the directors to take the necessary steps for completing the negotiations with Messrs. Hanna, Donald, and Wilson, in respect thereto.

Mr. LAMBERT seconded the resolution.

Mr. AYRES then proposed his amendment, to the effect that the proceedings be adjourned for one week, and that in the meantime a statement of the facts be embodied in a short report, and circulated among the shareholders.

The amendment having been seconded, a further lengthened conversation ensued, in the course of which the absolute necessity for coming to an immediate decision was insisted upon by the engineer.

Ultimately, at the request of the chairman and several shareholders, Mr. Ayres consented to withdraw his amendment, and the motion was put and carried, with one dissentient.

The proceedings then terminated.

DR. HILLIER'S REPORT ON THE GAS SUPPLIED BY THE IMPERIAL COMPANY TO THE VESTRY OF ST. PANCRAS DURING THE MONTH OF OCTOBER, 1865:—

Maximum light estimated by sperm candles according to the Act	14·4
Minimum light—sperm candles	13·4
Average light—sperm candles	13·9
Traces of ammonia, indicated by turmeric test-paper	Constantly.
Traces of sulphuretted hydrogen, indicated by lead test-paper	None.

The illuminating power of the gas has been maintained during the past month; the average result of my observations was that it equalled 13·9 sperm candles, the lowest was 13·4 candles, and the highest 14·4 candles.

There are still constantly considerable traces of ammonia, but the gas has been free from sulphuretted hydrogen. It contained in the 100 cubic feet rather less than 20 grains of sulphur.

DR. WHITMORE'S REPORT ON THE QUALITY OF THE GAS SUPPLIED IN ST. MARYLEBONE, IN OCTOBER, 1865:—

OCTOBER.	Illuminating Power in Sperm Candles.			Mean Pressure in 10ths of an inch.	
	*Mean of 25 Observations.	Highest.	Lowest.	Highest.	Lowest.
Imperial Company's gas	14·57	15·50	12·87	24·87	8·20
Chartered Co.'s common gas	12·54	13·35	11·80	29·77	12·58
Chartered Co.'s cannel gas	20·81	22·68	19·50	30·38	12·63

* Each observation consists of 10 readings of the photometer.

The Imperial Company's gas during the past month has maintained an average illuminating power, equivalent to the light of 14½ sperm candles, eight times it was over 15 candles; the evening and night pressure has also been uniformly good. The Chartered common gas has shown a mean light equal to 12½ candles, thrice it was over 13 candles, and once only 2-10ths below the legal standard; the night and day pressure of this gas have both been high. The cannel gas gave an average light of nearly 21 candles, twice it was in excess of 22 candles, and twice a little below the standard, whilst the pressure was at times exceedingly high.

The quantity of sulphur in all the gases has been greater this month than in the two preceding months, and shows a small excess in both the gases of the Chartered Company. Ammonia has been found in all of them, but no trace of sulphuretted hydrogen in either.

DR. WHITMORE'S REPORT ON THE QUALITY OF THE WATER SUPPLIED IN ST. MARYLEBONE, IN OCTOBER, 1865:—

OCTOBER.	Total Solid Matter in degrees or grains per Imperial gallon.		Organic Matter in degrees or grains per Imperial gallon.		Ammonia.
	Oct., 1864.	Oct., 1865.	Oct., 1864.	Oct., 1865.	
Distilled Water	0°	0°	0°	0°	0°
West Middlesex water	14·44	16·24	1·68	1·28	....
Grand Junction water	17·68	16·64	2·24	1·48	....
Pump, Clay Street	....	51·84	....	5·60	2·936
Pump, Upper Marylebone Street	Jan., 1865. 87·04	74·08	Jan., 1865. 5·44	3·76	·623

EAST BARNET GAS AND WATER COMPANY.—A company is in course of formation for the purchase of the works established by Mr. Samuel Pontifex, for the supply of gas to East Barnet, and also of the water-works; and it is proposed to apply to Parliament in the next session for an Act of Incorporation, for which the required *Gazette* notices have been given.

Share List of Metropolitan Gas Companies.

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum	Price per Share.
	£		£ s d	£ s d	£ s d
5000	10	Anglo-Romano . .	10 0 0	9 0 0	10 to 12
5000	20	Bahia (Limited) . .	20 0 0	3 0 0	17 to 17½
1000	20	Do., preference .	20 0 0	10 0 0	28 0 0
750	20	Do., do., redeem.	10 0 0	10 0 0	12 to 13
20000	5	Bombay (Limited) .	5 0 0	£5 intr.	5⅜ to 5⅝
10000	5	Do., second issue	5 0 0	£5 intr.	5⅜ to 5⅝
10000	5	Do., third issue .	3 0 0	£5 intr.	3⅜ to 3⅝
5000	20	Brit. Provincial L.	20 0 0	7 10 0	29½ to 29¾
8200	20	Do., new . . . . (Norwich, Hull-Sculcoates, Hanley, Tunstall & Shelton (Potteries), Trowbridge, & Holywell.)	20 0 0	7 0 0	27 to 27¼
12000	50	*Chartered*	50 0 0	10 0 0	70 to 72
6000	50	Do.	30 0 0	10 0 0	40 to 41
10000	20	*C. of London*, Ash.	20 0 0	10 0 0	30 to 30⅜
10000	10	Do., B shares	10 0 0	4 0 0	7 5 0
8000	10	Do., new shares.	10 0 0	10 0 0	15 to 16
35000	25	City of Moscow (L) Colonial & General	5 0 0	£7 intr.	3 to 3¼
17490	25	*Commercial* . . .	25 0 0	10 0 0	41 to 41½
5000	20	Continental G. & W.	6 0 0	6 0 0	
2500	20	Continental Union.	20 0 0	8 0 0	18 to 19
17500	20	Do.	10 0 0	8 0 0	9 to 9½
5827	5	County & Gen. (L)	5 0 0		
2000	5	Do., preference . (Pater, Pembroke, Ely, Lea Bridge, Northfleet, Walton, & Ware.)	5 0 0	6 0 0	
5000	10	*Crystal Pal. Dist.*	10 0 0	10 0 0	16½ to 17
5000	10	Do., preference .	10 0 0	6 0 0	12¼ to 13
4000	50	*Equitable*	50 0 0	10 0 0	79½ to 80
4000	25	Do., new shares.	21 0 0	10 0 0	35 to 36
23406	10	European (Lim.) .	10 0 0	10 0 0	13¼ to 13½
12000	10	Do., new shares. (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	10 0 0	6½ to 6¾
20000	10	*Great Central Gas Consumers* . . .	10 0 0	10 0 0	15 to 15¼
5000	10	Hong Kong (Lim.)	10 0 0		11 to 12½
26000	50	*Imperial*, old sh.	50 0 0	10 0 0	81 to 82
1300	100	Do., bonds . . .	£100	10 0 0	197 to 198
7000	25	Imperial Austrian .	10 0 0		
28000	50	*Impl. Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam, Aix-la-Chapelle, Antwp., Bordeaux, Brussels, Cologne, Frankfort-on-M., Haarlem, Stolberg, Toulouse, & Vienna	43 15 0	16 0 0	98 to 99¼
3000	40	*Independent* . . .	40 0 0	10 0 0	65 to 70
3000	10	Do.	10 0 0	5 0 0	8 to 9
3000	20	Do.	10 0 0	7 10 0	11 to 13
6886	50	*London*	50 0 0	10 0 0	70 to 73
5519	25	Do., 1st pref. .	25 0 0	6 0 0	29 to 29¼
568	50	Do., 2nd pref. .	50 0 0	6 0 0	
219	50	Do., 3rd pref. .	50 0 0	6 0 0	
18781 *l*		Do., 1st pref. sk		6 0 0	
11828 *l*		Do., 2nd pref. sk		5 0 0	
12000	5	Malta & Medit. (L.)	5 0 0	2 10 0	
30000	5	Oriental, Calcutta	5 0 0	8 0 0	5⅜ to 6
30000	5	Do., new shares.	1 0 0	8 0 0	1 to 1¼
10000	5	Ottoman (Limited)	5 0 0		3½ to 4
10000	10	Pará (Limited) . .	10 0 0	£5 intr.	10½ to 11
27000	20	*Phœnix*	20 0 0	10 0 0	30¼ to 31½
3600	100	Do., new	10 0 0	7 10 0	14 to 16
144000	Sk.	Do. (capit. profits)		5 0 0	
5000	20	*Ratcliff*	20 0 0	10 0 0	32 to 34
	20	Rio de Janeiro (L).	20 0 0		20 to 20¼
4138	5	Singapore (Lim.) .	5 0 0		
2000	5	Do., preference . Shanghai	5 0 0	7 10 0	
4000	50	*Sth. Metropolitan*	50 0 0	10 0 0	80 to 82
15000	10	*Surrey Consumers*	10 0 0	10 0 0	14¾ to 15
10000	10	Do., new	4 0 0	10 0 0	7 to 7¼
9000	50	United General . . (Dublin & Limerick)	50 0 0	4 12 0	30 to 32
10000	10	*Victoria Docks* . .			
1500	10	*Wandsworth & Putney*	10 0 0	7 10 0	
1500	10	Do., new shares.		7 10 0	
20000	10	Western (Limited) A shares.	10 0 0	10 0 0	16 to 16½
10000	10	Do., B shares.	5 0 0	10 0 0	8½ to 9
10000	10	Do., C shares.	3 0 0	10 0 0	5½ to 6
20000	10	Do., D shares.	1 0 0		1¾ to 2
8000	5	*West Ham*	5 0 0	7 10 0	6 10 0
6000	5	Do., new shares.	3 0 0	7 10 0	3 18 0
551	10	West London Junction (Lim.) . .	10 0 0	6 0 0	
520	10	Do., preference .	10 0 0	6 0 0	

Price Current.

CASTINGS.—*Per Ton.*

Average Weight of Cast-iron Gas-pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lb

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle	Wales.	Yorkshire, Derbyshire, and Staffordshire.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
Pig Iron, No. 1, G.M.B.	3 17 6	2 17 9	2 11 3	3 5 0	3 15 0
1¼ and 2-inch Socket-pipes	7 10 0	6 0 0	6 15 0	6 15 0	7 10 0
2¼ and 3-inch ditto	7 0 0	6 0 0	6 5 0	6 10 0	7 0 0
4 and 5-inch ditto	6 10 0	5 10 0	5 15 0	6 0 0	6 10 0
6 inches and upwards ditto	6 5 0	5 0 0	5 10 0	5 15 0	6 5 0
Retorts, 1st fusion, hot blast	6 0 0	—	5 5 0	5 10 0	6 0 0
Ditto, 2nd ditto, cold ditto	7 0 0	5 15 0	5 15 0	6 0 0	7 0 0
Tank-plates, ¼ thick and above	6 10 0	5 10 0	5 10 0	5 15 0	6 5 0

WROUGHT-IRON TUBING,

Subject to 50 per cent. Discount.

	2 in.	1½ in.	1¼ in.	1 in.	¾ in.	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 12 feet—per foot		1 0	0 10	0 7	0 5	0 4½
Ditto ditto, from 6 inches to 18 inches—each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting-pieces, or Long Screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, Springs, and Elbows (wrought iron)	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, ditto	4 6	3 0	2 6	2 0	1 6	1 2
Iron Cocks	17 6	9 6	7 6	4 6	3 3	2 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and Nipples	1 3	0 9	0 8	0 6	0 5	0 4
Plain Sockets	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 3-quart	15 0	14 0	13 6	13 0	12 0	—

GAS COALS.—*Per Ton.*

Newcastle.—Unscreened:—

Brancepeth, Burnhope, East Castle, Haswells, Lanchester's Pelaw, Nettlesworth Primrose, and South Pelaw	6s. 6d.
Dean's Primrose, Felling, North Pelton, Redheugh Main, Walker's Primrose, West Wear, and Whitwell Primrose	6 9
Craghead, Charlaw, Derwent, Edmondsley, Eighton Moor, Hartlepool Pelaw, Holmside, Lambton's Gas, Medomsley, Mickley, New Pelaw, New Pelton, Pelaw Main, Ravensworth, South Moor Pelton, South Leverson, Towneley Main, Tyne Main, Washington Hutton, West Pelaw, Wearmouth Hutton, and Witton	7 0
Peareth, Ravensworth Pelaw, Waldridge, West Garesfield, and West Pelton	7 3
Pelton, South Peareth, Stella, Urpeth, and West Leverson	7 6

Scotch Cannel:—

Boghead (at Leith)	45 0
Kirkness, best	23 0
Capeldrae, 1st quality	20 0
Ditto, 2nd ditto	12 6
Lesmahago (at Glasgow)	24 6
Ditto (at Granton)	25 6
Arniston	27 6
Wemyss	20 0
Haywood, Wilsontown (at Granton)	14 0
Pirnie	14 0
Lothian's Cannel (free on board at Leith)	25 0
Myles' Cannel	21 0

FREIGHTS.

Coastwise—Newcastle.—Per Ton:—

Chatham and Rochester	6s. 9d. to 7s. 0d
Cork	9s. 6d. to 10 0
Dover, Folkestone, and Rams.	6s. 9d. to 7 0
Dublin	10s. 0d. to 10 6
Exeter Quay	10 0
Ipswich	6 9
London (from Leith)	9 0
London (Pool)	6s. 9d. to 7 0
Lowestoft and Yarmouth	6 0
Portsmouth and Southampton	9 0
Plymouth	9s. 6d. to 10 0
Shoreham	8 6
Whitstable	8s. 9d. to 9 0
Weymouth	9 6

Foreign.—Per Keel:—

Barcelona	23 10
Bordeaux	16 0
Boulogne and Calais	9 10
Cadiz	17 0
Copenhagen	10 0
Genoa	22 10
Hamburg	11 10
Havre de Grace	11 0
Leghorn	21 0
Lisbon	16 0
Rotterdam	11 0
Stettin	9 10
Trieste	20 0
Venice	21 0

SUNDRIES.

Best Nstle. Fire-bks., p. 1000, £2. 10s. to £3	15 0
Cliff's Fire-bks. (at Wortley), p. 1000.	2 15 0
Ingham's ditto (at Wortley), p. 1000.	2 15 0
Fire-clay Retorts, p. ft. run, 5s. 6d. to	0 7 0
Tough Cake Copper, p. ton	119 0 0
English Pig Lead, p. ton	21 10 0
Welsh Bar Iron (in London), p. ton	7 12 6
Foreign Spelter, p. ton	32 0 0
English Block Tin, p. ton	130 0 0
Banca, p. ton	97 10 0
Tarred Rope Yarn, p. cwt.	1 0 0

Advertisements.

THE

GAS-METER COMPANY, LIMITED,

(LATE CROLL, RAIT, & CO.,)

Beg to intimate that the printed report of the official inspector of Gas-Meters for the City of Manchester for the year ending **1864** shows the following comparison :—

NEW METERS TESTED.

Of the Gas-Meter Company, Limited . . Dry . . 1116
Wet* . . 1292

Total . . . . . —— **2408**

Of George Glover and Co. . . . . Dry 383

* The Unvarying Water-Line Gas-Meter, in regard to which the following extract from said report refers :—"The visiting justices will perceive, from a comparison of the tables now appended with those of last year (viz., 1863), *that there has been a large increase in the number of new wet meters tested, owing to the Gas Committee having substituted the wet for the dry in the case of hired meters.*"

Extract from printed report of the said official inspector for the year ending 1862, shows the following comparison :—

Croll, Rait, and Co., per centage of error on the number tested . . 8·671
George Glover and Co. „ „ „ . . 22·727

WANTED, an Engagement as MANAGER of a Country Work, or INSPECTOR of METERS. No objection to go abroad to manage a work, or under an engineer. Age 37. 14 years experience.

Address, GAS MANAGER, 17, Ryder's Court, Leicester Square, LONDON, W.

THE Advertiser, who has been for nearly four years in the service of a gas company, desires a situation as STOREKEEPER, CLERK, or in any other capacity. Aged 26. Highest references can be given.

Address, E. H. C., Rist's Library, Edwardes Terrace, KENSINGTON, W.

TO GAS-FITTERS AND GAS COMPANIES.

WANTED, by an experienced young man, a situation as GAS-FITTER, or GAS-FITTER and SERVICE-LAYER. Can give unexceptional references if required.

Address, A. D., care of Mr. Rakes, Park Road, Hampton Wick, MIDDLESEX.

GEORGE GLOVER & CO.'S
IMPROVED DRY GAS-METERS,
STANDARD GASHOLDERS, AND TESTING APPARATUS.

Extensive experience, in this country and abroad, has proved the superiority of their Improved Dry Gas-Meters, which have come more rapidly into general use than any Meter hitherto manufactured.—The printed Report of the official Inspector of Gas-Meters for the City of Manchester, for the year ending 1863, shows that he tested 5707 *new Dry* Gas-Meters, and only 5 *new Wet* Meters; and that *George Glover and Co.'s Improved Dry Gas-Meters stand highest in point of accuracy*, as shown in the following extract:—

" George Glover and Co., per centage of error on the number tested, 2·116.
Thomas Glover " " " 2·812.
Croll, Rait, and Co. " " " 5·540.
Thomas Fletcher " " " 15·121.
Joseph Boulton " " " 25·000."

Ranelagh Works, Ranelagh Road (near Pimlico Pier), London, S.W.; and 15, Market Street, Manchester.

JOSEPH BOULTON,
PATENT DRY & IMPROVED WET GAS-METER MANUFACTURER,
80, KING'S CROSS ROAD, AND 10½, GREAT PERCY STREET,
CLERKENWELL, LONDON,

Begs respectfully to call the attention of the London and Provincial Gas Companies to an attempt which is being made by Messrs. George Glover and Co., Ranelagh Works, Ranelagh Road, Pimlico, to depreciate his Meter and those of other makers, by the publication of an extract from the Official Report of the Manchester Meter Tester for the year ending 1863, from which they wish it to be understood that the dry meter has obtained so prominent a position in Manchester that the wet meter is entirely excluded, thereby misleading the public; the fact, however, being that in the year 1864, the Gas Committee of that city passed a resolution against dry meters altogether, and have reverted to the exclusive use of wet meters. This proves the assertion as regards the use of dry meters in Manchester, given out by them at the present time, to be inaccurate; to confirm which, as well as to prevent the public from being misled in reference to the meaning of "per centage of error," Joseph Boulton directs attention to the following letter:—

GAS-METER TESTING OFFICE, *Bootle Street, Manchester, September* 16, 1864.

MR. J. BOULTON.

Dear Sir,—I am in receipt of your favour of the 15th inst., calling my attention to a Circular issued by Messrs. George Glover and Co., and based upon returns given in my last Report, 1863, wherein the per centage of error is mentioned. I am exceedingly sorry that those returns should have been used to the prejudice of your interest, or any other maker of meters, by Messrs. George Glover and Co., merely because they stand at the minimum per centage of error. These returns were compiled, by request, for the information of the Justices and Town Council of Manchester only, and not for the purpose of allowing any one maker to advertise by it, to the disadvantage of another.

With regard to your dry meter, I can testify to its being equal to any that are at present in the market for excellence of workmanship and material, and reliability of registration, and this I speak from my own experience of your meter prior to my present appointment, and also from subsequent knowledge as inspector; and I beg to assure you that the per centage of error as shown against your meter, or any other maker, *does not, in my opinion*, reflect in the least upon the merits of such meters as regards their construction, durability, and correct indication, but merely refers to the adjusting of the measuring capacity to the limit of range of 5 per cent., as per Act.

I append to this letter an extract from my last Report, which will convince you that I do not draw the same inference from the results as the firm named. I may here mention that the Gas Committee of this city have again reverted to the exclusive use of wet meters.

I am, dear Sir, yours faithfully,
(Signed) JAMES URQUHART, *Inspector.*

Note.—The per centage of error indicates only the condition of the meters as sent from the works of the maker to the inspector's office for verification and stamping in accordance with the Act. The public purchasing meters, of whatever make, providing they bear the Government stamp, have a guarantee that such meters will not register more than 2 per cent. in favour of the seller, or 3 per cent. in favour of the consumer of gas, the extreme difference sanctioned by the Act.

Without detracting from the qualities of any other meter whatever, Joseph Boulton wishes to state the fact, that Mr. Daniel Horton, of Liverpool, and Mr. James Urquhart, of Manchester, Official Gas-Meter Testers for those cities, distinctly affirm, that better meters than his, in every respect, are not made by any one in the trade. Joseph Boulton confidently says, that he uses only the best materials of the various kinds in their construction, and pays more for labour in the manufacturing of dry meters than any other maker, so as to secure the most skilled workmen.

September, 1865.

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TO CORRESPONDENTS.

A. M.—*The "double tap" recommended by Mr. Hughes has no micrometer adjustment like the double tap of an experimental meter, but is adjusted by a key in the most unscientific manner possible.*

O. O. O. O.—*The only works on the subject in the English language are Peekstone's, which is obsolete; Hughes's, of which a second edition has recently been published; and Clegg's, of which a fourth edition is now in the press.*

NOTICES.

The subscription is 15s. per annum, if paid in advance during the month of January, or 18s. credit, in two sums of 9s. each, in July and January of each year. Post-Office orders must be made payable at the Charing-Cross Money-Order Office, to William H. Bennett, No. 42, Parliament Street, Westminster.

All Communications to be addressed to the Editor, No. 42, Parliament Street, Westminster; and orders for Advertisements to the Publisher, Mr. W. B. King, No. 11, Bolt Court, Fleet Street.

THE JOURNAL OF GAS LIGHTING, WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, DECEMBER 12, 1865.

Notes upon Passing Events.

THE *Revue Contemporaine* has lately been engaged in a favourite employment of French writers of the romantic school—not washing the blackamoor white, but blacking the white Englishman; that is, stating or insinuating that some well-known English inventor, some acknowledged benefactor of the human race, is a mere plagiarist. In this last instance, gas lighting is the subject. The well-known inventor, Murdoch, is not mentioned; Winsor, the founder of coal gas companies is put in the foreground, and the whole merit of original invention is given to an unfortunate, unappreciated Frenchman—Philippe Lebon d'Humberstein. Lebon was educated in the school of *Ponts et Chaussées*, which he entered after an examination in 1787. It is rather remarkable that the only educational establishment in Europe devoted to the study of science applied to the practical arts of construction, should have had no share in perfecting and popularizing the inventions which have done most to extend commerce and civilization. The steam-engine, and its applications to river, to ocean navigation, and to railroads, gas illumination, and the electric telegraph, owe nothing to this scientific army, organized under the patronage and control of the French State. On the contrary, the construction of railroads in France was retarded for years by the theoretical fancies of the prize pupils of the *Ponts et Chaussées*. In like manner in the present day we find engineering works, required for the development of Italy, obstructed by the prejudices of official engineers. Our own art of gunnery was stationary as long as it was under the sole control of officers educated in a traditional school. William Murdoch lighted up his own house at Redruth with gas in 1792. He proved this most distinctly in his evidence before Parliament, when opposing an Act for which Mr. Winsor had applied. This is well known to all English and most French gas engineers. But this article in the French review is not meant for engineers, but to amuse and flatter the vanity of those for whom the apocryphal story of Salomon de Caus and the Marquis of Worcester was invented. But although Philippe Lebon was not the first inventor of gas illumination, there is no doubt that he was a most ingenious man, who, like Girard, deserved a better fate, and was unfortunate in being born in France instead of in England. The *Ponts et Chaussées* having, according to the French practice, offered a prize for an essay on the improvement of the steam-engine, Lebon competed, and won it. In his essay, he suggested improvements in the application of heat to the boiler, so as to make it moveable; "to "pass the steam through a red-hot tube, so as to obtain "greater expansion;" and certain arrangements, of which no details are extant, for consuming smoke. He also suggested, in the pumping operations (the only use to which the steam-engine was then applied in France), a contrivance now universally adopted—the suppression of the beam, and the use of the piston in a direct-action steam-pump—an adaptation which took place in England while the name of Lebon was unknown, under the pressure of demand, like most many other mechanical inventions. Lebon seems to have been a born inventor, only needing customers (instead of prizes) to develop into a useful and successful man. In 1796 he took out his first patent, for improvements in distillation. It was the thirty-fifth patent issued under the law which made that a right which had been previously a royal privilege and monopoly. There were only forty patents of inventions issued in four years! Being one of the national official engineers, he was soon afterwards sent, in a subordinate position, to superintend canals and roads; and, as he was entirely devoted to science, and anxious "to "make all his friends mathematicians, including the son-"in-law of his chief," it is not surprising to learn that his superior officer became jealous of his troublesome inventive subordinate, and endeavoured to exile him to a desolate district, where there were no works to execute and no credit to be gained. With some trouble, after appealing to the Minister at the head of the department, he escaped from these persecutions, and, although much pinched in means—"for the Re-"public paid neither its labourers nor its engineers, in those "days"—he still pursued his investigations; and, on the 29th of September, 1799, took out his patent for a new method of employing combustibles usefully for lighting, for warming, and for obtaining various products. We do not learn from this paper at what time he perfected his "*thermolampe*," but at any rate the patent was granted seven years after Murdoch had not only invented but used coal gas as a means of illumination. But so estranged were the two nations, that we are quite willing to believe that Lebon's was an independent invention. He writes to the Minister, in a letter of apology for the neglect of his road-making duties—"At length I have been "fortunate enough to succeed, and by the simple application "of heat to a kilogramme of wood obtained the purest in-"flammable gas, in such abundance as to give as much light "as four or five candles for two hours." It seems that Lebon burned wood in a close brick oven, and that the product was conveyed by a pipe into a cask full of water, which received the tar and pyroligneous acid, and gave out the gas. The

inventor exclaimed, in his enthusiasm, to the peasants of his native village, where he performed the experiment, "My "friends, I will warm you; I will light all the way from "Bauchay to Paris." While Murdoch was illuminating the factory of Boulton and Watt, to celebrate the Peace of Amiens, Lebon was, on the same occasion, illuminating his hotel at Paris with wood gas. The war having been renewed, after the peace which Napoleon had employed to prepare for a descent on Ireland, Lebon devoted himself to the manufacture of tar for the navy. He lived in a hut in the forest of Rouvray with his young wife and children, and underwent the greatest hardships. On one occasion the roof of his hut was blown off in the night, on another his children lost, on their way through the forest, all the ready money for the use of the house. But his affairs were taking a brighter turn, and the manufacture was beginning to yield a profit, when he was invited to be present at the coronation of the Emperor, and was murdered the same night in crossing the Champs Elysées, then a wilderness of rubbish. After the tragical death of this ardent and ingenious man, whose ill fortune it was to have a Government instead of a people for his patrons and customers, his inventions were carried out for some time by his widow, Cornelia de Brambilla, a very little and pretty woman—a Belgian by birth, of Spanish descent—but ill luck still pursued the family. Trafalgar destroyed the French navy and the demand for tar, so the forest factory was ruined; and here the reviewer, with impertinent vanity characteristic of his nation, proceeds to suggest that, if Lebon had lived, he might have so improved Fulton's steam-engine that Napoleon would have made an easy conquest of Great Britain! The English writer on the inventors and appliers of the steam-engine who should hypothetically suggest the result of half a dozen steamboats in the hands of Nelson or Collingwood, would have to pass a very unpleasant quarter of an hour with English reviewers. Madame Lebon afterwards endeavoured, without success, to obtain a contract for lighting Havre. Finally she obtained a pension of £48 a year! Murdoch received a pension of £1000 a year from Boulton and Watt; and Winsor, the active promoter and founder of coal gas lighting companies, received a handsome pension from the Chartered Gas Company. It was by English capital and by English engineers that gas lighting was introduced on the Continent. These continual attempts to claim for Frenchmen the inventions of Englishmen, when brought together, only show that, until recently, at any rate, France was not a country in which original inventive genius received either encouragement or reward. Amongst the names of unappreciated French inventors we must now add that of Lebon to those of Jacquard, Girard, and the first Brunel.

The fever in the Chorlton district to which we referred in our last "Notes" has led the authorities to institute a very curious action. They have taken proceedings against the trustees of the Bridgwater Canal which intersects the fever-affected parishes, for a nuisance. The defendants reply, "We "are not guilty; we are the sufferers by the pollution of "rivers from which we legitimately draw our supply of "water." The trial will be amusing and profitable to the lawyers. In the end, no matter by whom created, the nuisance must be abated. The residents near polluted rivers and canals now see how fortunate it is that all England was not compelled, as Mr. Chadwick intended, to adopt the water-closet system, before any arrangements had been made or could be made for the construction of intercepting main sewers. Nothing can be cleaner or more luxurious than the water-closet system where it can be carried out in perfection, as it will be in the metropolis when the Thames embankments and the sub-incumbent sewers are completed. But in many districts of England where physical geographical difficulties are in the way of the safe disposal of sewage rivers, the best security against poisonous nuisance is to be found in dry deodorization. Coal ashes are a wonderful deodorizer, and the mixture is worth something, at the worst and lowest, the cost of cartage for manure, if the quantity weekly produced be not absolutely overwhelming. But then some pains must be taken to mix the dust and the foul stuff by plain sensible directions which working people can understand. The water-closet system in a village or small town deprives the neighbourhood of valuable garden manure, and is often an unmitigated nuisance into the bargain—the cause of chronic stinks on land and poisoned rivers.

There is a movement amongst the Common Council of the City for a change, which will make every member of it *ex officio* a Commissioner of Sewers. It is a movement which is sure to succeed, because it will not answer any one's purpose to resist it; and in parish politics as in war, the attacking party has a great advantage. But it certainly is not a move in the right direction for preserving the power and influence of the Corporation of London. Whenever a reform is undertaken of the only unreformed corporation in great Britain, the very first step will be to reduce the number of the Common Council. The Commission of Sewers is virtually a committee of the Common Council, appointed by it to attend to certain practical work. Theoretically it is an independent body. If the Common Council swamps the Commission of Sewers with a large body of untrained members, it will be exactly reversing the precedent of the House of Commons. The House of Commons used formerly to transact private business, such as canal and railroad Bills, in a committee of the whole House, and afterwards by committees of very large numbers, the majority of whom only attended to vote without troubling themselves about evidence. The numbers in the Private Bill Committees have been by degrees reduced down to three and five, with manifest advantage for business purposes. Sound arguments might be found for reducing the numbers of the Commissioners of Sewers and for paying them, but to swamp them with Common Councilmen will be a change, not a reform, for the purpose of giving the whole corporation an infinitesimal share of patronage. A change that would elect aldermen for seven years instead of for life, and the Lord Mayor by the Common Council, for three years instead of one, would certainly invigorate the Corporation and raise the two dignities to some importance. But how can a corporation be respected that had as Lord Mayor Magnay, and nearly had Muggeridge?

The Society of Arts have been again discussing the idea of a transfer of railways to Government, and Mr. Galton, an Irish barrister, we believe, and no relation to Captain Douglas Galton, had an opportunity of explaining his romantic scheme, which he did with great modesty and no great success. Mr. Galton's notion is a form of socialism. Monsieur Prudhon claimed a periodical or occasional division of property; others, not quite so advanced, only claimed gratuitous education and an absolute claim for wages—viz., the minimum of work and the maximum of wages. Mr. Galton considers that all the inhabitants of this country have, or should have, the right of travelling by railway at cost price, or below cost price; and that the public should be taxed to supply any deficit in the returns of the railroads so worked. If this be conceded by railroads, why not by steamboats? why not by omnibuses? why not by cabs? Why should the bloated aristocrat loll in a hansom, while the working man of all the virtues has to perch on the knifeboard of a twopenny 'bus? There are just as strong arguments to be found for feeding and clothing the public wholesale, from Government warehouses, as there are for reducing railway fares at the expense of an additional income-tax. That there is a great deal to mend in the management of railroads, as in the management of every great undertaking, is a truism; but the question is, what reason have we for believing that railroads, the property of Government, would be managed better than in the hands of private speculators? It would be very easy to prepare a very pleasing plausible report in favour of Government's acquiring a large mess of house property in great towns, rebuilding or improving it for the benefit of the labouring classes. Why not? Every labourer requires a lodging; it is not every labourer that requires a journey by railway. The opponent's of Mr. Galton's ideas had one question he could not answer. He could not point to any Government establishment requiring construction and maintenance that was economically and successfully managed. The examples of dockyards, of clothing establishments, of palaces, and all the works in Woods, Forests, and Public Buildings, are not tempting. At present railroad directors live under a certain measure of Government control and a certain pressure of public opinion. When a want has been made known it is by degrees satisfied, but what could be said or done to the lessee of a Government property. It was well pointed out in the course of the discussion that on the Continental lines, which have a monopoly, the traffic for passengers and goods is not arranged to suit the convenience of either, but one or two monster trains are despatched daily for the benefit of the shareholders. The managers of a line of low traffic

leased from Government, and bound not to exceed the charges possible on a line of crowded traffic, would be obliged to adopt the plan of accumulating traffic. Government lessees must be protected from competition. At present competition, although it will not make railroads run for an unlimited period at a loss, always adds permanently to the convenience of the public in speed, in number of trains, and in station accommodation. Competition created the Victoria station, which was followed by the Charing Cross, the Ludgate Street, the Cannon Street, and the Broad Street stations. Competition has brought the Midland up to London, and will take a second line from Kent into Brighton. As we have said before, it is impossible to unite the advantage of a Government monopoly and private enterprise. If we admit, what is probable, that lines owned by Government would run at lower fares than where they are ruled by shareholders, experience tells us that what was gained in price would be lost in activity and extension. From the time the railroad system passed into the hands of Government all improvements must cease, because improvements mean spending money to be voted by Parliament. Some reference was made to the comparative statistics of accidents on British and foreign railways quoted by Mr. Chadwick, to show the inferior safety and consequent management of British railways. If the figures had been correct, they would have proved about as much as a comparison between the accidents in the streets of Brussels and in the City of London. We know now, however, that these figures are pure fictions—all cases of accident on foreign Government railroads are carefully suppressed. It would not be safe for any foreign journal to publish them. The waste of money in parliamentary contests is often dwelt upon. It is the price we pay for our system of contest and competition. In France public companies have not to spend money in that way. Each concession is a monopoly, and therefore bestowed on some imperial or royal favourite, or earned by some millionaire capitalist. Secret service absorbs what makes the fortunes of our lawyers. Calais is not the best port for the Great Northern Railway of France, but the influence of the Rothschilds is too great to give a chance to a well-known project which would start from a port admitting steam-packets at all times of the tide. Mr. Edwin Chadwick has promised to return to the charge with a paper in favour of State railways. He will, no doubt, reiterate all the fallacies and all the misstatements that have been again and again refuted; but his paper will, nevertheless, be worth hearing and answering.

Public opinion, without which there can be no decisive action on the part of our Government, is at length assuming a definite shape in regard to the cattle plague. The Central Farmers Club and the Royal Agricultural Society have both sent deputations to the Home Office, asking for an Order in Council which shall, for a certain number of weeks—six or eight—put a stop to all shows, all sales, all collections of cattle, all travelling of cattle, so that the progress of contagion may be stopped, and the centres of contagion ascertained and compelled to die out within their respective circles. Slowly and unwillingly every intelligent farmer has arrived at, and agrees in this conclusion. The total stoppage of the live meat trade will, as long as it lasts, create great distress amongst consumers, and be absolute ruin to a numerous class of labourers and small tradesmen engaged in markets and fairs. The price of meat will be enormously enhanced, and the loss in offal of beasts slain in remote farms will be serious. But this great loss will be temporary—there will be an end to it; while, on the other hand, as long as this highly contagious pest is propagated by the daily movement of stock, the loss is endless and incalculable. What should we do if, at this moment, ten thousand men, afflicted with virulent small-pox, were travelling in every direction through the kingdom, by railway, by omnibuses, and by cabs, frequenting the most crowded assemblies of business and amusement? Why an Order in Council or an Act of Parliament passed in haste, would give the police authority to arrest these propagators of death and confine them to their homes or to hospitals. The cattle plague is more infectious than the small-pox, and will, if unchecked, cost the country more than the potato-rot or the cotton famine. But in urging the immediate stay of all movement of cattle, while the cold weather renders the conveyance of dead meat possible, we cannot refrain from expressing our astonishment that a journal usually so well informed as the *Times*, should suggest the conversion of the whole live meat trade of London into a dead meat trade. In the first place, for at least six months of the year, meat would become tainted in little more than an hour's journey; in the next place, to undertake to carry what now carries itself, would be about as possible as to conduct all the foot traffic of London in omnibuses. Like Jove, the modern Thunderer sometimes dreams and nods.

Circular to Gas Companies.

THERE are six notices of application to Parliament next session to incorporate competing gas companies in addition to those mentioned in our last. Two of them have been given by companies for lighting Aldershot, where there are also Government works erected for the supply of the camp; one notice is from the Chatham, Rochester, Frindsbury, Strood, New Brompton, Gillingham, and Rainham Gas Consumers Company; two from Slough, Datchet, and district companies; and one from a proposed "London Railway Gas Company." The object of the latter company is to compete with several of the metropolitan companies in supplying gas to railway carriages, should that mode of lighting the carriages be generally adopted; for though the London, Brighton, and South Coast, the South-Eastern, the London and South-Western, and the London, Chatham, and Dover Railways only are named, power is required to lay down mains from the proposed works in the parish of St. Paul, Deptford, to Rotherhithe, Bermondsey, Southwark, Battersea, Putney, Croydon, Camberwell, and other places in Surrey; to Hammersmith, Fulham, Kensington, Westminster, and other parts of Middlesex, and within the City of London. It is proposed to incorporate the Gas-Works Clauses Act and other general Acts in that of the company, who seek to be authorized to sell, supply, and let gas-meters, fittings, and apparatus, to exercise all such powers and privileges as are usually conferred on gas companies, and "to supply the gas for sale to the before-mentioned railway companies, or any of them." Notices of 50 gas Bills have been given, and copies of all those which are intended to be brought before Parliament will be lodged in time to enable us to give abstracts of them in our next number.

The Court of Common Council of the City of London, at their meeting on Thursday last, confirmed the report of the special Gas Committee, and sanctioned the proceedings they have taken for giving notice of the intended application to Parliament to authorize the Corporation to manufacture and supply gas to the citizens, and to purchase the site of the works in the parish of West Ham. The committee estimate the total expense, including the purchase of the site and the laying down of mains and service-pipes, at £425,000, and they obtained authority from the court to consult with the Coal, Corn, and Finance Committees respecting raising the money. It appears, therefore, that the question of competition by the Corporation with the existing gas companies will actually come before Parliament, and though the proceedings are inaugurated under the auspicious patronage of Mr. Bontems, the chairman of the committee, a very stormy contest may be expected before their close.

The *Times* has raised its voice against the flood of new joint-stock companies daily pouring into the money market, especially against those companies formed to carry out great works abroad, which tend to withdraw from this country capital that is urgently required for home works of acknowledged public utility, that offer far greater prospects of profitable returns than *boulevards*, or other improvements in second or third-rate cities on the Continent. The mania for speculation has seldom, indeed, been more violent than at the present day; the chief difference in the existing symptoms and those of the South Sea Bubble, or of the railway mania of 1847, consisting in the multifarious forms in which it is displayed. Instead of being concentrated in one direction, it is diffused among hundreds of schemes, no matter their character or objects, every one of which, however, alike promising large returns for the money invested, and very few of them having any substantial foundation for such promises. The judicious comments of the *Times* on the extent to which the credulity of the public is imposed upon by the concoctors of bubble projects deserve to be quoted :—

Surprise has been expressed that there can still be a sufficient number of

dupes among the investing public to reimburse the professional concoctors of companies the expenses even of printing and advertising. A glance at the prospectuses daily issued is calculated to increase this feeling. They make no pretence towards fresh devices, and evidently indicate an unbounded faith that the field occupied by the classes whose intellects are only just up to the hack paragraphs that have done duty for the past two or three years is virtually inexhaustible. In each case there is a large sum to be paid to the vendors of the concern proposed to be carried on and extended, or to certain *concessionnaires* and contractors for enormous works, and the variations in other respects are wholly immaterial. Sometimes the amount of purchase-money is stated, and sometimes not; but it is invariably announced to have been fixed at a point highly advantageous to the shareholders. Occasionally the fact is paraded that there is to be no payment either for promotion money or goodwill, as if the equivalents for these were not quietly included in a preposterous sum in cash for plant and works, which, if sold under bankruptcy, would fetch nothing. Then there is the routine guarantee of 10 per cent. for five years, secured or not as the case may be, the affair in which the vendor thus gives "a proof of his entire confidence" usually consisting of the sale of some doubtful property or unprofitable contract which is worse than worthless for a sum equal to at least twice the total involved in such guarantee. At the same time the list of directors contains an abundant supply of admirals, colonels, or other persons who, knowing less about finance than any other men, are the most suitable instruments in the hands of the promoters, and these are leavened with a certain number of persons whose chief recommendation is that they are already directors of a multitude of third-rate concerns, the attention to which ought to occupy all their time. Sometimes the prospectus is garnished with the names of the promoters themselves, who are "instructed to offer for subscription," &c., and if these persons happen to be notorious through previous trials at law or reports of committees of investigation, the fact seems to offer no drawback to their success, especially if they take care not to ask for less capital than a million or two, and to put forth promises such as no persons with the least regard for their future reputation would venture upon.

A little check to the operations of the company concoctors would, perhaps, be furnished if the public would abstain from subscribing in every case where it is not stated in the prospectus that the directors subscribe in cash for the amount of their qualification, and having not directly or indirectly received any free shares or other pecuniary inducement for assuming the office save such as is publicly avowed. At present, in a large number of instances, it is the practice of the promoter to buy his directors, of whom there are always a number in the market, and the lowest price paid usually consists of the so-called "qualification," which ranges from £250 to £1000 in shares. Of course, if such a statement were looked for it would often be falsely made, the business being managed by some evasion; but the requirement would tend greatly to limit the available supply of directors, since even among the third-rate people, who are willing to join anything, and whose names are most familiar in such positions, there are many who would hesitate to commit themselves to a misrepresentation which, in case of discovery, would legally and socially be attended with fatal consequences.

Investors in the shares of gas companies are, generally speaking, not speculators, but they purchase with their savings to hold as permanent investments. The premium-hunters do indeed occasionally apply for such shares, and are grievously disappointed if they find their capital diminished 50 per cent., althongh 7 per cent. interest may perhaps be guaranteed upon it for a short term of years. But the *bonâ fide* investor will carefully assure himself that the undertaking promises to be a profitable one, and that only a reasonable price is paid for it. The premiums for what are termed concessions either in money or in shares, or in improvident contracts for works, are the bane of most such enterprises. We have now before us the balance-sheet of a foreign gas company, from which it appears that about 57 per cent. on the paid-up capital, or 14 per cent. on the subscribed capital, has been agreed to be paid for concessions for lighting a small number of insignificant towns, the names of which are almost unknown beyond the province in which they are situated. From 10 to 15 per cent. on the nominal capital of a projected company seems to be considered the share to which a "concessionnaire" is entitled, and so long as dupes can be found to pay it, the trade in concessions may be expected to thrive. Such a system ought not to be continued. A thorough investigation of every undertaking, by competent and disinterested parties, ought to be instituted, and their reports should appear in the prospectus of each projected company, to serve as a guide to intending applicants for shares, instead of leaving the promoters to settle the amount to be paid and the conditions of payment, and then representing in false colours the advantages to be gained by their bargain. Another point that should be attended to is to restrict the commitments of the company to the amount for which capital is ensured. An important gas company, half only of whose subscribed capital has been paid up, has recently been compelled to issue 7 per cent. preference shares, to pay for new works and to meet 6 per cent. obligations falling due, instead of calling up the balance of the subscribed capital, which under usual circumstances would be the proper source for obtaining funds. The effect of that measure has been to occasion a fall in the value of the ordinary shares, the interests of the holders of them having been permanently prejudiced by the creation of preference shares.

We have much satisfaction in noticing the Bombay Gas Company, Limited, as a favourable exception to the manner in which colonial and foreign gas companies are too frequently established and conducted. Neither concession money nor promotion money were paid at the formation of that company, and the directors purchased their own materials and erected their works without the intervention of contractors. A circular from the chairman to the shareholders, just issued, announces that the lighting of Bombay with gas was successfully effected on the 7th of October last. The number of lights fitted and in progress at the end of that month was nearly 3000, and the municipal commissioners had ordered, in addition, 1250 lamp-posts. It is mentioned as an assuring feature of success, that the natives readily and freely adopt gas illumination in their temples and at their festivals; as many as 75 lamp-posts having been temporarily erected in a street 200 yards long, for a native wedding.

The question of the use of subways by gas and water companies has been again brought before the Metropolitan Board of Works. The Streets Committee and the chief engineer have made reports to the Board relative to alleged damage done to the subway in Southwark Street, in laying the mains of the Southwark and Vauxhall Water Company and of the Phœnix Gas Company. The complaints against the companies are, that they have broken through the side openings of the subway and done considerable damage to the brickwork, and that in opening the streets also they have disturbed the concrete and not relaid it a proper manner. It appears that further attempts have been made by the Board to induce the water company to use the subways, but without success. The solicitor of the Board has reported that the proceedings of the two companies are illegal, and one of the members suggested at the last meeting that they should be prosecuted for trespassing in the "cellars" of the Board. Sir John Thwaites, however, seemed more inclined to mourn at the discouragement of the efforts of the Board, by the refusal of the companies to take advantage of the subway provided for them, than to go to law about the matter. It will be well if the result of the experiment in Southwark Street discourage the Board from squandering more money in constructing such practically useless subways.

The Sales of Gas Act has had the effect of greatly diminishing, though it has not altogether put a stop to, the complaints of gas consumers that their meters register a greater quantity than is consumed. A case of the kind recently came before the county court at Runcorn. The gas company took proceedings against a surgeon in the town, who refused to pay his gas bill on the ground that the amount charged was greatly in excess of the corresponding quarter of the previous year. In the meantime, however, a new and stamped meter had been fixed on the defendant's premises, in consequence of the former one having ceased to register, and when complaint was made of its undue registration another meter was placed by its side to test it, and both agreed. It was also proved that when the meter was subsequently tested by the meter inspector of Liverpool, it was found to register one-half per cent. slow. It was clearly established that the difference in the quantities charged in the two quarters was not attributable to defective registration in the new meter, and the jury gave a verdict for the company for the amount claimed.

Among the many joint-stock companies lately formed, there is one for the amalgamation of several collieries in Lancashire that may seriously compromise the interests of gas companies. The Haigh and Holland Collieries, the Kirkless-Hall Collieries and Iron-Works, the Standish and Shevington Cannel-Works, and the Broomfield Colliery, have been amalgamated as the Wigan Coal and Iron Company, Limited, with a capital of £2,193,000 in shares of £100, each with £70 paid. The effect of this amalgamation is to create a monopoly of the supply of Wigan cannel coal in the hands of three or four owners, who may thus regulate the price.

The action brought by Mr. T. A. Hedley against Mr. Dethick, the sewer contractor, the trial of which in the Court of Exchequer is reported in our present number, is the sequel to the action, tried in July last, that was brought against the same defendant by the Phœnix Gas Company, for alleged damage done to their mains in making a sewer at Greenwich. The plaintiff, in the second action, sought to recover the sum of £76. 13s., for his services according to the particulars in the action, for which we refer our readers to the report. We should not have made any further allusion to the trial had it not been for the evidence of Mr. G. W. Stevenson, re-

ferring to an alleged practice of scientific witnesses to regulate their charges according to the success or failure of the cause. We never before heard such a practice publicly avowed, and the attention that has been drawn to the subject, calls for a public disclaimer. The Council of the Institution of Civil Engineers ought, in justice to the profession at large, at once to repudiate the practice avowed of regulating the charges of scientific witnesses on any such principle.

The success of the associated fire insurance companies in the case of the Wood Street fire has induced them to try another case, which has occupied the Exchequer Court for the greater part of three days, and has resulted in a nonsuit. The action was brought against the Chartered Gas Company, to recover damages caused by a fire which destroyed Saville House, Leicester Square, in the month of February last. The premises were insured by the Commercial Union Insurance Company, who sought, in the name of the tenant, to recover the amount they had been called upon to pay under their policy. The negligence imputed to the gas company was that their servants had, after disconnecting the service-pipe from the meter, left it in an unsafe condition, so that the gas escaped therefrom. The defence was that the service-pipe was properly plugged after being disconnected, and that the gas was turned off at the main cock. It was also alleged that the cork with which the pipe was plugged had been fraudulently removed from the orifice of the pipe, and the gas carelessly turned on by some person employed on the premises. At an early stage of the proceedings, the Lord Chief Baron, who presided, expressed a somewhat strong opinion against actions of this nature, and on the last day of the trial he said emphatically, "I, for one, think that we ought to hold rather "a tight hand upon the endeavour to make one person "responsible for the negligence of another. The real "plaintiffs in this case are the Insurance Company. They "cannot complain of the tenant, supposing there had "been negligence on his part, because they actually "insure him against the consequences of his own negligence. "If a man negligently sets fire to his own house the insurance "company are liable, but because they have some one else, not "the owner, who they think is guilty of negligence, they are "trying to make him pay the damages which they ought "themselves to pay." The learned judge further stated that, after hearing the evidence as far as it had gone (for the defendants case was not completed), he was at a loss what question to leave to the jury, for even supposing the gas company's servants ought to have done something which they did not do, they were contributory only in a remote degree to the accident, which could never have occurred had not some other person subsequently turned the gas on again at the main cock. The jury intimated that in their opinion there was no evidence of negligence on the part of the defendants servants. Mr. Bovill, who appeared for the plaintiff, elected to be nonsuited, the learned judge having refused permission to amend the declaration. The hearing of the case only terminated yesterday, and we are consequently compelled to defer our report until our next issue. Another action against the same company, for damages caused by an explosion of gas escaping from a main in Oxford Street, which had been broken by some sewer operations, has gone over till next term, in consequence of the non-attendance of a sufficient number of the special jury summoned to try the cause.

There were two errors in our last "Circular," which we are glad to correct. The Colchester Gas Company we find have not been "caught napping;" or at all events they have roused themselves in sufficient time to take advantage of the indiscreet haste of their opponents, to make public their notice of intended opposition. The notice of the Colchester Gas Consumers Company is dated November 9th, and its early publication in the local papers enabled the existing company to prepare a notice of their intention to apply to Parliament for an Act, and to publish it in a local paper three times in the month of November and once in the *London Gazette*, as required by the Standing Orders, so that they will be ready to meet their opponents on equal terms should the latter go before a parliamentary committee. The other error arose from our copying the statement of Mr. Alderman Browning, that the price of gas at Oxford is 4s. 6d. per 1000 feet. The fact is, that the present price is only 4s. per 1000 feet, to which it has been reduced for some time past, with the prospect of a further reduction when the arrears in previous dividends have been paid.

Communicated Article.

SUPPLYING GAS TO STREET-LAMPS.

By J. O. N. Rutter.

METERS—REGULATORS—DOUBLE TAPS—COMMON TAPS.

"It can't be done." "Why not?" "Because it can't."

This is a fair sample of the so-called arguments used by those who see no necessity for a change in the method of supplying gas to street-lamps.

It can be done. A little more patience and a few more efforts, and it will be seen that common sense is capable of producing extraordinary changes. The right principle is the use of meters. They are the only proper tests of quantity. Practical appliances are certain to follow. What will be thought, and what ought to be said, about gas lighting as a *science*, if no means can be devised for ascertaining the quantity and settling the price of gas for lighting streets?

It was not likely that the contract system would be given up without a struggle. When nothing more could be said in its favour, it would still be honoured because it was old. The differences of opinion, and the disputes about details, disagreeable as they may be, are the merest trifles in comparison with the advantages of an improved system. Mistakes, and failures, and misunderstandings are every-day occurrences, and more is made of them than they deserve. A little less of partisanship and a little more of mutual forbearance, and there would not have been so much waste of temper and of money.

Many of the statements respecting the irregularities in meter rates of consumption show that the observations have been improperly conducted. More than four years of experience in such matters has satisfied me that there is nothing difficult nor mysterious in applying meters to street-lamps, and that the uniformity in the rates of consumption may truly be said to exceed expectation. Local conditions, the laws of pressure, and a few of the most obvious precautions have to be considered. If this be done, the wonder will be that the new system had not been thought about and put in practice long before.

Whatever plans be adopted, it is not to be supposed that they will be literally perfect; nor is it necessary. Mathematical accuracy in the dimensions of a gas-flame, and arithmetical perfection in measuring gas, are not attainable. But there is an immense difference between systematic adjustments, based upon a right principle of computation, and rule-of-thumb adjustments which admit of no computation.

In supplying gas for street-lamps, the principal conditions are —What is to be paid for the gas? How is the quantity used to be ascertained? Until these questions are satisfactorily answered, neither buyers nor sellers will stand in their proper relations to each other.

Whence have originated some of the worst forms of agitation for cheap gas? Most frequently in complaints about the charges for street-lamps. Unreasonable and unjust as such complaints may be, it rarely happens that the subject can be so explained as to be made intelligible. Why? Because the conditions, as to quantity and price, are not sufficiently definite.

Disputes about street-lamps easily assume larger dimensions, and so prepare the way for complaints of another kind. What have been the weakest ought to be made the strongest parts of the agreements between public authorities and gas companies. If this be not done, something worse than periodical grumblings must be expected—part of the bad bargain which always has been and always will be inseparable from the contract system.

Admitting that a few years ago there were, for want of suitable mechanical contrivances, difficulties in adjusting the supply and determining the quantity of gas consumed by street-lamps, no such difficulties now exist. The little machines—street-lamp regulators—are exactly what were wanted. Cheap and also durable, they are admirably adapted to help forward the meter system; and are just as necessary for a meter to every lamp, as for meter averages. Properly made, the regulators are what they profess to be; the controlling mechanism being simple, and admitting of a series of adjustments to meet all the practical requirements of different localities, qualities of gas, rates of consumption, and separate districts of the same town. The way in which these instruments do their work, and the necessity for using them, will be better understood when public authorities buy gas for lighting streets in the same manner as it is bought for lighting houses, that is, at per 1000 cubic feet. Regulators are economists in another way besides that of equalizing the supply under variable and frequent changes of pressure. They cause a given quantity of gas to yield more light than can be obtained from the same quantity by an ordinary tap and burner.

Regulators are called *self-acting*, a term usually applied to automatic mechanism; but which, of course, is used only in a restricted sense. In a similar way as a meter is set in motion by the gas which passes through it, a regulator is influenced by the impulsive effort of the gas to force its way to the burner. The restraint it exercises upon the gas is its sole value; nothing being left to the discretion of the lamplighters.

Lately there has been a great controversy about double taps,

which have been proposed as being suitable for street-lamp adjustments, especially in connexion with meter averages. What are double taps? Two single taps placed one above the other on the same tube; no new invention, certainly, for they have been used in gas lighting manipulations at least forty years. For experimental purposes, where extreme accuracy is required and the observations must be frequently repeated (as in photometry), double taps are invaluable. So far as adjustments are concerned, one (the lower) tap only is used; but as it is a great convenience, as well of saving of time and labour, to preserve any particular adjustment intact, the upper tap may be turned off and on a hundred or a thousand times, without affecting the other. All other conditions being the same, any required quantity of gas will pass the adjusted tap for weeks or months in succession.*

But the conditions—what are they? To make equal quantities of gas pass an adjusted tap in equal periods of time, the most important conditions are uniformity of pressure and of quality. There are others which need not, at present, be mentioned. To simplify the matter, let all that relates to quality be granted, and the chief difficulty—pressure—will then have to be dealt with. There is nothing magical in adjusting a tap. As said already, it can be done with an extraordinary degree of accuracy, and being done, so long as circumstances remain the same, such adjustments may be depended on.

In the nightly process of supplying gas, uniformity of pressure is impracticable. Frequent changes have to be made—more frequent, of course, before midnight than after; and such changes are directly at variance with what is required to ensure equal supplies in equal periods of time through adjusted taps. There is nothing new nor strange in this. It is exactly what has been going on from the earliest days of gas lighting to the present time—the cause of interminable disputations between public authorities and gas companies—and likely to continue until the contract system is abolished.

Let me not be misunderstood. I have no intention of saying there is no difference between an ordinary tap and a double tap. In their application to street-lamps, there *is* a difference, and it is this:—By an ordinary tap, the gas is turned on and the quantity adjusted (shall we call it extemporaneously?) by the lamplighter. If he understand his work, and do it well, he will know by the size of the flame and the force of the gas through the burner at the time of lighting, when pressure is greatest, what it will be after midnight, when pressure is least, and regulate accordingly. In this way, where ordinary taps are used, are adjustments made—dependent on the eyes, the hands, and the care of the workman. The greater the range of pressure—that is, the difference between the greatest and the least—the greater the difficulty in so regulating the supply as to prevent excess in the evening and deficiency in the morning.

By a double tap, adjustments may be made which may extend over any required periods, according to season or other circumstances. In this way the most important part of a lamplighter's duty is done for him. He has nothing to do with the quantity of gas passing through the burner. That is settled beforehand; and he is not permitted to interfere with the taps by which the adjustments are made.*

But it is not so easy as some people imagine so to adjust the quantity of gas to street-lamps as to ensure anything like uniformity in the rates of consumption in different lamps. The town may be districted, the lamps grouped, allowances made for differences of elevation, for trunk-mains and branch-mains, for the busiest streets and for outlying districts, and then it will be found that in scarcely three lamps in succession will the pressure at the taps exactly correspond.

Convinced as I have long been that a better system of supplying street-lamps will reckon among its other advantages the economization of gas, I am also of opinion that the proper time to economize is in the evenings, and not in the mornings. By double tap adjustments, if the supply to the lamps at first lighting be so limited as to be barely sufficient, with the greatest pressure, it is certain that the streets will be in a state of comparative darkness in the mornings. Far better—because more rational, more practically useful, and more satisfactory—will it be so to adjust and equalize the quantity of gas that, from the time of lighting to the time of putting out, the size of the flame shall remain the same. By street-lamp regulators this can be done more easily and more accurately than in any other way.

As much for my own guidance as the desire to communicate information to others, I have made numerous experiments with regulators, double and common taps, and steatite and iron bat's-wing burners. Put into the accompanying form, and read with the explanatory notes, I think there will be no difficulty in understanding them.

The same (dry) meter and (wet) governor, each as good as can be made, with pressure-gauges and other apparatus, were used for all the experiments. The meter was frequently tested. "Pressure" means pressure upon the regulators, taps, and burners when in actual operation, irrespectively of that upon the meter. "Hourly rates of consumption" are actual not computed (experimental) rates. No one of the observations occupied a less period than an hour, and the greater part three hours.

There has been no choosing nor selecting; for each regulator nearest to hand, was taken and set to work, nothing relating to its capabilities being previously known. If one was better than another, and the worst was first to hand, the maker must bear the blame. Nothing is more certain than that street-lamp regulators can be made to work with extraordinary accuracy and uniformity. The slight differences in their construction are of little consequence; but it is of consequence that all of them should be properly made and carefully adjusted; so that whether 100 or 500 be ordered they may be thoroughly depended on.

* Whilst writing this I have tested an adjustment made eleven weeks ago, and in which there is no appreciable change.

* A spanner or other form of master-key is used for the purpose.

Hourly Rates of Consumption.

Tenths of Inches Pressure.	Regulators.						Double Tap.			Single Tap—Common Burner.			Regulators.					
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
26	4·85	4·75	5·13	4·15	5·1	5·8	6·1	5·9	..	5·8	..	..	6·	4·8	4·	4·7	5·	5·1
24	5·07	5·05	5·15	4·53	5·1	5·73	5·9	5·65	..	5·8	..	..	5·8	4·9	4·1	..	..	5·2
22	4·95	5·15	5·15	4·5	5·1	5·73	5·7	5·45	..	5·5	..	..	5·73	5·	4·1	..	..	5·2
20	5·1	4·85	5·15	4·6	5·1	5·7	5·3	5·2	6·9	5·3	..	7·	5·8	5·	4·1	..	5·2	5·2
18	4·95	4·95	5·18	4·4	5·1	5·7	5·	4·85	6·4	4·87	..	6·5	5·6	5·1	4·1	..	..	5·2
16	4·95	5·15	5·18	4·75	5·1	5·63	4·7	4·55	6·	4·7	6·	6·2	5·7	5·1	4·1	4·9	5·3	5·2
14	4·9	5·25	5·27	5·2	5·1	5·63	4·3	4·2	5·6	4·2	5·7	5·7	5·7	5·1	4·1	..	..	5·1
12	4·85	5·1	5·3	5·	5·2	5·6	4·	3·85	5·1	3·9	5·2	5·3	5·7	5·2	4·1	..	..	5·1
10	4·85	5·1	5·3	4·9	5·2	5·6	3·5	3·5	4·45	3·5	4·7	4·8	5·4	5·1	4·2	4·9	5·3	5·2
8	4·7	5·15	5·45	4·8	5·1	5·53	3·1	3·1	4·1	3·1	4·3	4·3	5·1	4·9	4·	..	..	5·2
6	4·	5·1	5·4	4·4	5·1	5·17	2·7	2·67	3·6	2·73	3·6	3·8	4·85	4·6	3·9	3·8	5·3	5·2
5	3·52	5·	5·27	3·95	4·95	4·5	2·5	2·4	3·2	2·43	3·2	3·3	4·5	4·	4·	..	5·1	4·8
4	3·	4·1	5·	3·3	4·4	3·8	2·1	2·1	2·8	2·1	2·7	2·9	4·1	3·4	3·7	..	..	..
3	2·2	3·2	4·55	2·67	3·6	3·	1·8	1·8	2·4	1·8	2·4	2·6	3·7	2·8	3·2	..	..	..

EXPLANATORY NOTES.

B, C, D, E. Regulators—new—from four different makers, each with its appropriate (tested) burner. D is marked for four, and the others for five, cubic feet per hour.

A. Regulator—a year old—same maker as B—own burner—five feet.

F. Regulator—new—same maker as A and B—fitted with an ordinary street-lamp bat's-wing (iron) nib. This is intended to show that the regulators and their own (tested) burners ought to be used together.

G, H, I. Double tap—steatite bat's-wing nib—three series of observations—the first adjustments being of course arbitrary; but sufficiently near to every-day practice to be very instructive.

J, K, L. Single tap—ordinary street-lamp bat's-wing (iron) nib—three series—one adjusted at 26/10ths to a 5·8-feet rate, another at 16/10ths to a 6·0-feet rate, and a third at 20/10ths to a 7·0-feet rate.

M. Regulator—not new—same maker as D—own burner—five feet.

N. Regulator—new—same maker as A and B—own burner—five feet.

O. Regulator—new—same maker as D and M—own burner—four feet.

P. Regulator—F, own burner.

Q. Regulator—new—same maker as C—own burner—five feet.

R. Regulator—new—same maker as E—own burner—five feet.

The steatite bat's-wing used with the double tap was one of the best of its kind, and offered no resistance to the flow of gas. With the tap full on this burner passed at 16/10ths 9·5, at 10/10ths 7·2, and at 5/10ths 4·6 cubic feet per hour.

The iron bat's-wing, taken from a street-lamp, with the tap full on, passed at 16/10ths 7·5, at 10/10ths 6·4, and at 5/10ths 4 cubic feet per hour.

In every instance where there seemed to be any unaccountable irregularity the experiment was repeated. All the irregularities in the regulators point in one direction:—carelessness in adjusting and testing. This is remediable. Let us not expect nor exact too much. Whilst we are thinking of tenths, or half-tenths, of pressure, as influencing the required adjustments, we must remember the fiftieths and hundredths of tenths, which are not easily recognized, but are not without their influences.

Regulators are durable. I have examined several; one, within the last few days, taken from a street-lamp, where it had been in constant use since 1858. The diaphragm is as perfect as ever.

Black Rock, Brighton, Dec. 5, 1865.

Correspondence.

THE NINE ELMS EXPLOSION.

SIR,—What has been said by your respective correspondents* about the best way of constructing and imparting security to station governors, is so much to the purpose that I hope we shall hear no more about enclosing them.

Whatever be the differences of opinion as to an air-vessel, or no air-vessel, there ought to be none as to the diameter and depth of the tank, and the range of the governor-holder laterally and vertically. Whilst permitting the cone to shut off the outlet, the cross-beam should be so adjusted as to prevent any strain upon the suspending chain, and strong enough to resist the further rising of the holder, even should the guide-rollers give way and the holder be thrown out of gear. The water-seal, without any pressure on, ought to be equal to twice that of the heaviest gasholder. Self-acting and self-supplying arrangements are not without faults and defects. Properly looked after, they do what is required; but they frequently cause over-much confidence, and occasion greater trouble than they were intended to prevent. I greatly prefer watchfulness, and at stated periods, daily and weekly, as the cases require. For many years no day has passed on which, at a certain hour, the tar-seals, self-acting syphons, water-lines of station-meters and governors, and the lutes of purifiers have not been examined. Once a week, and always on the same day, every valve upon the station is also subjected to a careful examination.

When everything works easily and goes on pleasantly, it is not to be expected that workmen should be thinking about, or providing against, some unknown mishap. But if there be one occupation more than another in which it is required that the master should be looking ahead, it is in the management of gas-works.

The terrible accident at Nine Elms is without a parallel in the history of gas lighting. It is not likely, and, so to speak, not within the limits of probability, that anything resembling it will ever happen again. Its lessons ought not to be, and are not likely to be, ever forgotten. From what is known of the causes and the consequences of the accident, nothing new is to be learned respecting the properties, and the habits, and the explosive conditions, of coal gas. It was not to be expected that we could know more. But there are other matters which require to be kept in remembrance, and which deserve serious consideration. Judging by the information we possess, the calamity was occasioned solely through the ignorance, or negligence, and most likely both, of a man, or men, in no way connected with gas-works, gas apparatus, or gas operations. Nor is it too much to say that such an accident could not have happened, but for the presence of strangers in the governor-room at that time. Here is a warning. Let it be pondered over.

There are other lessons taught by this accident equally important as the security of station governors. It is hoped they may not be neglected. The inlet and outlet valves of governors—where should they be fixed? Willingly confessing my own errors in these matters, I do no more now than ask others to think if it will be right ever again to fix valves within the walls of a governor-room? To isolate the governor, by turning it out of action, is not difficult, nor very often necessary. But supposing this has to be done when something is wrong, and at night, would it not be easier and safer if the inlet, outlet, and by-pass valves were outside the governor-room?

* JOURNAL, Nov. 28, 1865, pp. 844, 846.

For lighting a governor or valve-room, I know of no better plan than having two cast-iron sash-frames filled in with strong glass, and a gas-light between them. One sash is fixed (air-tight) flush with the inside of the wall; and the other, opening outward, on the other side—a space of about an inch above and below the top and bottom bars being left for admission of air.

Dec. 5, 1865. * * * *

SIR,—I have carefully read the reports of the gas explosion at Nine Elms, London, and am convinced that the cause of it was the escape of gas from one of the governors in the meter-house. How the gas escaped from the governor has been reported, viz., by the tilting of the holder of the governor; but *how* the holder of the governor was tilted, or could be tilted, is yet unreported.

I can easily conceive how a holder of a governor could be tilted somewhat, if it were suspended by a cord or chain attached to a balance-weight, and not having any guide-columns, and even so suspended the clearance in the tank must be more than necessary before it could be set so far off the perpendicular as to cause an escape of gas: of course, it being understood that it is in a proper working condition. You say in your remarks on the explosion, in the JOURNAL of Nov. 14, that "each one" (*i. e.*, each holder of the two governors which were in use in the meter-house) "being kept in position by friction-rollers acting in three guide-columns, and by three sets of friction-rollers fixed round the bottom." It seems almost an impossibility for either of these holders to be put far off the perpendicular without one or more of the guide-columns breaking. No breakage of guide-columns is reported, except what you state in your description of the condition of things after the explosion. "The guides of the 24-inch governor were broken short off at the tank, but the gasholder itself was in its place, and it has been only crippled by the falling material." It is stated amongst the evidence given before the coroner's inquest, that a Richard Harvey explained, by the model, how the holder of the governor, was tilted, but the want of that explanation is the great desideratum to one who could not attend at the coroner's inquest.

Another consideration which renders the explanation, of how the holder of the governor was tilted, very necessary, is the seal of the holder. It is stated that it had 8 inches of seal, and that the gasholder gave a pressure of 6 inches. It is a fact, in the passing of gas through a governor to consumers from a gasholder, that the pressure is always less on the outlet side, and hence on the holder of the governor, than on the inlet side; consequently the holder would have more dip into the water, besides it having to be down to allow of the cone opening the space for the eduction of the gas. Now, these two conditions attendant on the working of the governor, give two inches + difference of pressures + depth of opening of cone = to the seal which had to be overcome by the tilting of the holder.

An elucidation of the question, how the holder of the governor was tilted? will much oblige

Dec. 6, 1865. S. G.

SIR,—The lamentable explosion at Nine Elms has brought forth many suggestions from gentlemen who think the open governor dangerous; and, so far as I understand them all, I ask you to be so good as to allow me to say that, for ten years past, I have made all my governors on a plan which combines the covered holder and the delicately-acting knife-edge balance.

Prevention is undoubtedly better than cure, but it needs a disease to enable us to discover that which is a preventive, and without the Nine Elms accident there would not have been the various suggestions now made.

Accidents will however happen, even to the very arrangement one may adopt to prevent them; but as an additional mode of drawing attention to the governor, in case it should by any means "blow," it would be easy to have an attachment which should, by the escaping gas from the cover, blow a whistle, or set in action an electric bell. The application of these suggestions is so obvious, that I do not take up your space to explain the *modus operandi* of either the one or the other.

GEO. BOWER.

St. Neots, Dec. 6, 1865.

Register of New Patents.

APPLICATIONS FOR LETTERS PATENT.

3036.—JOHN PHILLIPS BARAGWANATH, of 152, Upper Thames Street, London, engineer, for "*A combined adjustable spanner tube-cutter and pipe-wrench.*" A communication. Nov. 27, 1865.

3088.—LONGDON M'MURDO ROGERS, of Bouverie Street, London, merchant, for "*Improved means of preventing water-pipes from bursting.*" A communication. Dec. 1, 1865.

3089.—WILLIAM JOHNSON, of Glasgow, Lanark, N.B., lamp manufacturer, for "*Improvements in lamps, lanterns, and gas-fittings.*" Dec. 2, 1865.

3099.—THOMAS BELL, of Plaistow, Essex, for "*Improvements in treating the oxide of iron, residues of gas, purifying in order principally to extract sulphur therefrom.*" Dec. 2, 1865.

3117.—Philip Albert Muntz, of Keresley, near Coventry, Warwickshire, gentleman, for "*Improvements in the manufacture of metal tubes.*" Dec. 5, 1865.

GRANTS OF PROVISIONAL PROTECTION.

2934.—Jules Théodore Anatole Mallet, engineer, of 29, Boulevart St. Martin, Paris, for "*A new or improved process for the manufacture of oxygen.*" Nov. 14, 1865.

2965.—James Harbert, of Kidderminster, Worcestershire, gas-fitter, for "*Improvements in the production or manufacture of gas for heating or illuminating, and in the retorts and apparatus employed in such manufacture.*" Nov. 17, 1865.

2968.—Walter Payton, of 70, Sewardstone Road, Victoria Park, London, for "*Improvements in means or apparatus for measuring the passage or flow of liquids for raising and forcing fluids, and for obtaining motive power; also in means for the manufacture of parts of such apparatus.*" Nov. 17, 1865.

2986.—George Putland Hemming, of 2, Winchester Street, Maldon Road, Kentish Town, Middlesex, and Henry Coyle, of 46, Great Marylebone Street, London, for "*An improved trap or liquid sealing to the covers of cisterns, pans, jars, tubs, and other vessels or chambers.*" Nov. 20, 1865.

2998.—William Wells, of Manchester, gentleman, and Samuel Marland, of Clayton, near Manchester, oil refiner, for "*Improvements in apparatus for obtaining artificial light from volatile liquids or fluids.*" Nov. 22, 1865.

3061.—George Marshall, of Pont Blyddyn, near Mold, Flintshire, cooper, for "*Improved apparatus for facilitating the treating or preparing of casks and other vessels to make them tight and suitable for containing hydrocarbon and other fluids.*" Nov. 29, 1865.

NOTICES TO PROCEED.

2021.—William Clark, of 53, Chancery Lane, London, engineer, for "*Improvements in apparatus applicable as a motive-power engine, a pump, or fluid-meter.*" A communication. Aug. 4, 1865.

2128.—Nicholas Charles Szerelmey, of 90, Belgrave Road, Pimlico, London, gentleman, for "*Improvements in the manufacture of paper boards and pipes.*" Aug. 17, 1865.

2833.—James Webster, of Birmingham, Warwick, engineer, for "*Improvements in generating and applying certain gases, and in apparatus to be employed therein.*" Nov. 2, 1865.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

3108.—Jacques Arbós, "*Improvements in generating certain gases for obtaining motive power, and in the apparatus employed therein.*" Nov. 19, 1862.

3118.—Fielding Fletcher, "*Improvements in the arrangements of a vessel or vessels for the compression of air as applicable to lift or force pumps.*" Nov. 20, 1862.

3132.—Thomas Walker, "*Improvements in utilizing sewage matters, and in the means or apparatus employed therein, part of which improvements is also applicable to raising and forcing other fluids.*" Nov. 21, 1862.

3147.—James Webster, "*Improvements in the construction of burners and blow-pipes.*" Nov. 22, 1862.

3151.—Robert Hawthorn and William Hawthorn, "*Improvements in pump-valves.*" Nov. 24, 1862.

3157.—John Moule, "*An improved method of deodorizing mineral oils, and hydrocarbons.*" Nov. 25, 1862.

3206.—John Campbell Robertson and William Cornwell White "*An improved tap or cock.*" Nov. 29, 1862.

3220.—William Clark, "*An improved apparatus applicable as a pump, water-meter, hydraulic motor, or a steam-engine.*" A communication. Dec. 1, 1862.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £100 BEFORE THE EXPIRATION OF THE SEVENTH YEAR.

2692.—William Richards, "*Improvements in the construction of gas-meters.*" Nov. 26, 1858.

Parliamentary Intelligence.

NOTICES GIVEN FOR PRIVATE BILLS RELATING TO THE SUPPLY OF GAS, WATER, &c.

Aberavon Local Board.—Construction of water-works; purchase by compulsion or agreement of existing gas-works.

Aldershot Gas Consumers.—Incorporation of company; powers to maintain works and to manufacture and supply gas in Aldershot and neighbourhood; regulation and increase of capital; additional lands, &c.

Aldershot Gas and Water.—Additional powers to Aldershot Gas and Water Company, Limited; purchase of existing gas and water works at Aldershot; construction, maintenance, and extension of new and existing works.

Aldrington, Hove, and Brighton Gas.—Incorporation of company; powers to erect and maintain gas-works, &c., in the parish of Aldrington, and to supply gas, &c.

Alliance and Dublin Consumers Gas Company.—Extension of supply in counties of Dublin and Wicklow; maintenance of existing works; new works, and additional lands; further money powers; amalgamation, purchase, or lease of undertaking of Commercial Gas Company of Ireland, Limited, and purchase of undertaking in Dublin, Kingstown, and Bray, of the United General Gaslight Company; contracts with corporation and local authorities; change of name; amendment of Acts.

Banbury Gas.—Incorporation of company; cancellation of Articles of Association; powers to maintain, renew, and extend gas-works, and to light and supply with gas the town and borough of Banbury and other places hereinafter mentioned; extension of limits of supply; increase and regulation of capital; and other powers.

Barnsley Local Board of Health.—Extension of time for completion of water-works authorized by "The Barnsley Local Board Act, 1862;" powers to local board to raise further moneys, and to alter existing and levy additional rates; amendment of Acts; and other purposes.

Bath Corporation.—Water and sanitary and other improvements; acquisition by the corporation of lands, streams, and water-works; construction of additional works for supplying Bath with water; extension of area of supply of water by the corporation within the borough of Bath, and the adjoining parishes of Tiverton and Weston; acquisition by the corporation of the Freemen's Common, and of other lands held with and as part of the Royal Victoria Park, and dedication of parts thereof to public purposes; acquisition by the corporation of property for improving streets in Bath, and of certain cold bath, with powers to construct a public and free bath; increase of the powers of the corporation, as the Local Board of Health and otherwise, as to sanitary matters and improvements, and extension of the powers of sewering and draining over part of the adjoining parish of Charlcombe; powers to the corporation to borrow money, receive water-rents and other rents, and levy rates; consolidation of powers, and repeal and amendment of Acts.

Belfast Gas.—Additional lands, and amendment of Acts.

Birmingham Water-Works.—New sources of supply; reservoirs, shafts, and other works; extension and definition of limits of supply; application of existing and intended powers within the present and future limits; provisions as to water rates; supply of water; increase of capital; further powers; and amendment of Acts.

Bodmin Water.—Incorporation of company, and construction of water-works.

Bradford Corporation Markets, Fairs, and other Purposes.—Purchase or lease of market and other hereditaments, and rights of holding markets and fairs, and of appointing inspector of weights and measures; alteration of markets, and appropriation of existing site; purchase of fair and market grounds; prohibition to hold markets and fairs in the streets of Bradford; erection of market houses; power to levy stallages and tolls, and to borrow money; additional powers to borrow authorized capital for water-works; powers to issue coupons for interest; extension of time for construction of water-works; powers to lease surplus lands; incorporation and amendment of Acts.

Bray Improvement.—Constitution of New Township; power to supply gas and to enter into contracts as to supply of gas; powers to contract for the supply of water.

Bridge of Allan Water.—Incorporation of company; purchase of water-works; new works; and supply of water.

Brighton and Hove General Gas Company.—Extension of supply to Old Shoreham and Lacing; further money powers; provisions affecting consumers; new works, and purchase (compulsory or otherwise) of lands at Hove, New Shoreham, and Aldrington; amendment of Acts.

Briton Ferry Gas and Coke Consumers Company, Limited.—Reincorporation, with powers to maintain works and light Briton Ferry and Baglan Lower with gas.

Bromsgrove and Droitwich Water-Works.—Incorporation of company; construction of works; supply of water from Pike's Pool and Spadesbourne Brook, both in the parish of Bromsgrove, in the county of Worcester; power to levy rates, &c.

Brynmawr Gas Company.—Incorporation of company; powers to supply gas to the parish of Llanelly, and to the parcel of Prisk Upper, in the parish of Llangattock, and to the parcel of Duffryn Upper, in the parish of Llangynider, all in the county of Brecon; and to the parish of Aberystruth, in the county of Monmouth; purchase of lands by agreement; purchase of existing works.

Bury Gas.—Amendment of "Bury Gas Act, 1857," and "Bury Improvement Act, 1846"; power to raise money for gas-works by borrowing, or by the creation of annuities.

Cambridge University and Town Water-Works.—Additional money; extension of supply to Fulbourn, Madingley, Histon, Impington, Great Shelford, and Girton; further powers as to supply, and provisions affecting county and local establishments and institutions; vesting or acquisition of lands and waters at Cherryhinton and Fen Ditton; protection of such lands and waters; amendment of Acts, and repeal of provisions relating to Cherryhinton or Paper Mills Crook and Cherryhinton watering-places.

Canterbury Gas and Water.—Powers to the Canterbury Gaslight and Coke Company to raise further moneys for their gas and water undertakings; to supply gas and water to adjoining and other parishes and townships; to construct and maintain additional water-works and abandon their existing water-works; change of name of company; repeal of Acts, and consolidation and amendment of some of the provisions thereof, and grant of further powers; and other purposes.

Carlisle Water-Works.—Incorporation of company; new works; extension of limits for supply of water; power to raise additional capital; sale or lease to the Local Board of Health of the city; and other purposes.

Cefn, Acrefair, and Rhosymedre Water-Works.—Incorporation of company; power to construct water-works for the supply of certain places in the parishes of Ruabon and Llangollen, in the county of Denbigh.

Chatham, Rochester, Frindsbury, Strood, Brompton, Gillingham, and Rainham Consumers Gaslight and Coke Company.—Incorporation of company; power to supply gas to Chatham, Rochester, Frindsbury, Strood, Brompton, Gillingham, and Rainham Consumers Gaslight and Coke Company.

City of London Corporation Gas.—Purchase of lands and erection of gas-works in the parish of West Ham, in the county of Essex; power to the corporation of the City of London to supply gas within the City of London and liberties; powers as to laying of pipes in certain parishes; amendment of Acts; and other purposes.

Cleethorpes Gas.—Incorporation of company; powers to maintain works, and light the parish of Clee and other places in the county of Lincoln with gas; cancellation of Memorandum and Articles of Association; additional lands and capital, &c.

Colchester Gas Consumers Company.—Incorporation of company, with powers to supply gas to Colchester and other parishes and places in the the neighbourhood thereof; and powers as to existing gas company.

COLCHESTER GAS.—Incorporation of company; powers to maintain and extend works, and light Colchester with gas; to extend district; to break up streets, &c.; to levy rates, &c.; to lease the undertaking; to raise additional capital and borrow money; to change name and constitution of company; to cancel deeds of settlement; and other purposes.

COMMERCIAL GAS COMPANY OF IRELAND, LIMITED.—Dissolution and re-incorporation of company; limits of supply; further powers; construction of gas-works and supply of gas; amalgamation with the Alliance and Dublin Consumers Gas Company; purchase of works of the United General Gaslight Company; amendment of Acts.

CONGLETON GAS AND IMPROVEMENT.—Powers to corporation of Congleton to purchase undertaking of Congleton Gaslight Company, and to supply gas within the borough and certain townships; public lighting; cessation of inspection under General Lighting Act; provisions as to improvement; paving highways; sewers; water supply: purchase of water from canal company, and other sources; markets and fairs; borrowing powers; rates; alteration of rates; repeal or amendment of Acts, &c.

CROYDON COMMERCIAL GAS AND COKE COMPANY.—Construction of new works: extension of limits; increase of capital; amendment of Acts.

DORKING WATER.—Incorporation of company; construction of works; compulsory purchase of lands; power to contract for sewage and construct works; agreement with vestry or local authority.

DROGHEDA WATER.—Extension of time for compulsory purchase of lands and houses; power to Drogheda Water-Works Company to create and issue debenture stock, and to divide their shares into preferred and deferred shares, and to make other provisions in respect thereof; incorporation of Acts and amendment of the Drogheda Water-Works Act, 1864.

DUBLIN CORPORATION WATER-WORKS.—Amendment of existing Acts; powers to enlarge relief tanks or reservoirs, and construct and divert conduits, and to take additional lands for the purpose; to extend time for the completion of the works; to construct line of telegraph in connexion with stations and works; to create tontine annuities, and to enable and empower the corporation to borrow on mortgage for the purposes of their Acts further or additional sums of money; and for other purposes.

DUNDEE WATER-WORKS.—Alteration and extension of works; additional capital; amendment of Acts; and other purposes.

EAST BARNET GAS AND WATER COMPANY.—Incorporation of proprietors of the East Barnet Gas and Water Company, Limited; confirmation and maintenance of works; acquisition of existing gas and water works; construction of additional gas-works; defining limits of supply; further money powers; and other purposes.

EBBW VALE, BEAUFORT, SIRHOWY, AND VICTORIA DISTRICT WATER.—Incorporation of company; construction of works; supply of water to Ebbw Vale, Drysiog, or Briery Hill, Beaufort, Sirhowy, Dukestown, and Victoria, and other parts of Llangunnider, Llangattock, Bedwellty, and Aberystruth.

FLINTSHIRE OIL AND CANNEL COMPANY, LIMITED.—Powers to manufacture and supply oil, paraffin, and paraffin light for lighting the borough and city of Chester, and certain neighbouring and other parishes and places in the counties of Chester and Flint; purchase of land; construction of works; regulation and increase of capital; dissolution of company, and incorporation of new company; and other purposes.

FROME GAS.—Incorporation of company; power to maintain works and light Frome-Selwood and other places with gas; cancellation of Deed of Settlement; increase of capital.

GLASGOW CORPORATION WATER-WORKS.—Supply of water from the river Clyde; new works; removal of weir across the Clyde; amendment of Acts.

GRANGE AND CARTMEL DISTRICT GAS AND WATER WORKS.—Incorporation of company; powers to Furness Railway Company, and affecting their undertaking.

GREENOCK AND SHAWS WATER.—Transference to a public trust of the powers and property of the board of police of Greenock so far as relating to supplying water: acquisition by, and transference to such trust or the said board of police, of the works, property and powers of the Shaws Water Joint-Stock Company; dissolution and winding up of that Company; power to such trust or board to raise money and levy rates; repeal and amendment of Acts; other purposes.

GREENOCK WATER.—New reservoirs and other works for additional supply; rates; power to borrow; other purposes.

HEYWOOD WATER-WORKS COMPANY.—Increase of capital; amendment of Act.

HOLYHEAD WATER-WORKS.—Incorporation of company; construction of works, &c.

HORNSEY GAS.—Power to light with gas the whole of the parish of Hornsey, and the detached part of the parish Clerkenwell; to augment, fix, and regulate the capital of the company; to erect and maintain works; to manufacture, purchase or hire gas-meters and gas apparatus.

HUDDERSFIELD WATER-WORKS.—Construction by Water-Works Commissioners of new works; diversion of certain springs and roads, and other powers; extension of limits; powers to local boards, &c.; alteration of rates or rents; consolidation and amendment of Acts.

IMPERIAL GASLIGHT AND COKE COMPANY.—Increase of capital, and purchase, &c., of lands; amendment of Act.

KILMARNOCK WATER.—New works; additional supply of water; increase of capital; repeal or amendment of Act.

KILMARNOCK IMPROVEMENT WATER SUPPLY.—Amendment of Acts; power to Commissioners of Police of the burgh of Kilmarnock to acquire Lochgoyn and Dunton Dam reservoirs and to construct works for supplying water for flushing the channel of the river at Kilmarnock; to levy rates and assessments; and other purposes.

LEICESTER WATER-WORKS.—New works; extension of limits of supply; levying and alteration of rates; increase of capital; provisions as to rights of shareholders in company in any capacity; definition or alteration of rights and liabilities of local board; further powers, and amendment of Acts.

LIVERPOOL CORPORATION WATER-WORKS.—New reservoir, roads, and other works; alteration or repeal of certain provisions as to supply of water down the river Roddlesworth; amendment of Acts; and other purpose.

LONDON GAS.—Increase of share and loan capital; amendment of Acts.

LOUGHOR BOROUGH WATER-WORKS AND IMPROVEMENTS.—Improved water supply to Loughor; to the upper town and Loughor town, and to the Spitty Copper-Works; power to the corporation of the borough to construct reservoirs and conduits and other works; to buy mills and water-rights; to levy water-rents and rates, and to charge the corporate estate and borough rates; to supply water out of the district of the corporation; to improve the town and corporate estates; to collect the ancient dues, layerage, and tolls of the borough; to establish and regulate a market and fair, and to make other improvements in the said borough; amendment and repeal of Acts.

MARYPORT IMPROVEMENT, HARBOUR, AND DOCK.—Repeal of existing Act; reconstruction of the trust; general and special improvement provisions, and sanitary and police regulations; water-works and water supply; gas-works and gas supply; harbour works, and new road in connexion therewith; provisions for steam-tugs and dredgers, harbour and other boats; rating powers; extension of limits of the trust for foregoing purposes; borrowing powers; contract powers; incorporation of Acts; definition of limits of chapelry of Maryport; authorization of marriages therein, and confirmation of marriages hitherto celebrated at St. Mary's Chapel, Maryport.

METROPOLIS GAS ACT AMENDMENT.—Amendment of Metropolis Gas Act, and of local and personal Acts relating to the supply of gas in the metropolis and suburbs; reducing rate for future supply; purchase and sale of gas-works, and erection of other gas-works beyond a radius of five miles from Charing Cross; levying rates; and for other purposes.

NEATH NEW GAS COMPANY, LIMITED.—Incorporation of company; erection of new gas-works, in Neath, for supplying Neath and other places with gas; purchase or lease of the undertaking of the Neath Gaslight and Coke Company; power to that company to sell or lease; incorporation of Acts; levying of rates; dissolution of Neath New Gas Company, Limited.

NELSON LOCAL BOARD.—Power to local board to supply water and gas; to construct works; to purchase and hold lands; to purchase or lease the undertaking of the Nelson Gas Company, Limited; to effect general and sanitary improvements; to take or levy rents and rates; to raise money; to make bye-laws; amendment of Acts.

NEWARK GAS COMPANY.—Increase of capital; additional lands; new works; arrangements with commissioners and other bodies and persons; furthers powers; repeal and amendment of Acts.

NEWCASTLE AND GATESHEAD WATER-WORKS.—Additional works, lands, and water supply; extension of limits of supply; alteration of rates for water-closets and baths; additional capital; extension of time for compulsory purchase of lands and completing certain works; amendment of Acts.

NEW RIVER COMPANY.—Powers to raise further money by shares, loan, and debenture stock; regulations of capital: amendment.

PAISLEY WATER.—Extension of works, and supply to Paisley, Johnstone, and Elderslie, and places adjacent; new powers to commissioners; amendment or repeal, and consolidation of Acts.

PETERBOROUGH WATER-WORKS.—Incorporation of company; construction of works; supply of water to Peterborough and neighbourhood.

REDHEUGH BRIDGE AND APPROACHES.—Incorporation of company; construction and maintenance of bridge and roads; powers to purchase lands and to levy tolls; powers for the Newcastle and Gateshead Water Company and Newcastle and Gateshead Gas Company to agree for use of the intended bridge and roads, and to lay pipes in and through other lands, and to subscribe and raise money; amendment of Acts, &c.

ROCHDALE WATER-WORKS.—Construction of additional reservoirs, conduits and other works; power to purchase lands, &c.; divert waters, &c., stop up roads, &c.; prevent fouling of water by certain stone-rubbing mills, &c.; powers in reference to supply, rates, increase of capital; and provisions in reference to capital; amendment of Acts.

SHEFFIELD UNITED GASLIGHT COMPANY.—Extension of limits of supply; increase of capital; power to raise money on mortgage or bond; additional lands and works; arrangements with the corporation and other local authorities; remuneration of managing director; provisions as to supply of gas by company; recovery of rates; further powers; sale of superfluous lands; repeal or amendment of Act.

SHEFFIELD WATER-WORKS.—Repeal or alteration of Acts; powers to company to take the whole of the waters of the river Rivelin and its tributaries above existing gauge thereon; new works on the river Rivelin; further powers as to lands and works at the reservoir in Agden Dike, and at the reservoir at or near the junction of Dale Dike and Strines Dike; extension of time for completing works; additional share and loan capital, &c.

SLOUGH, DATCHET, AND DISTRICT GAS.—Incorporation of company to supply gas to Slough, Upton-cum-Chalvey, Datchet, Stoke Poges, and Salt Hill; powers to erect gas-works at Datchet; power to purchase undertaking of the Slough Gas and Coke Company; incorporation of general Acts.

SLOUGH GAS AND COKE COMPANY, LIMITED.—Reincorporation, with power to maintain existing works, &c.

SOUTHGATE AND COLNEY HATCH GASLIGHT AND COKE COMPANY, LIMITED.—Dissolution and reincorporation of the Southgate and Colney Hatch Gaslight and Coke Company, Limited; power to maintain works, and to manufacture and supply gas in Edmonton and other places; to extend the limits of supply; regulation and increase of capital, and other powers.

SOUTH STAFFORDSHIRE WATER-WORKS.—New works and extensions; extension of limits of supply; amalgamation of the Burton-upon-Trent Water-Works; powers with respect to the Wolverhampton New Water-Works Company; increase of capital and borrowing powers; amendment of Acts.

STOCKTON GAS COMPANY.—Further powers of Municipal Corporation to raise money, and for recovery of gas-rents, damages, costs, and expenses; amendment of Act.

STOURBRIDGE IMPROVEMENTS.—Extension of limits to the town or township of Stourbridge, and on vote of ratepayers to all or any of the other townships or hamlets in the parish of Oldswinford; sanitary and other improvement of the limits; improvement of markets; purchase or lease of gas and water works; repeal and amendment of Acts.

TAIN WATER.—Supply of water; new works.

THE BRITISH GASLIGHT COMPANY (Staffordshire Potteries Act).—Alteration of powers and amendment of Act.

THE CHILDWALL GAS COMPANY, LIMITED.—Power to maintain and extend existing works, &c.

THE EQUITABLE GASLIGHT COMPANY.—Increase of capital; amendment of Acts.

THE GASLIGHT AND COKE COMPANY.—Repeal and consolidation of Acts; dissolution and re-incorporation of company; purchase of lands and construction of new works; regulation and increase of capital.

THE GASLIGHT AND COKE COMPANY, AND CITY OF LONDON GASLIGHT AND COKE COMPANY.—Amalgamation; increase of capital; amendment of Acts.

THE LONDON RAILWAYS GAS COMPANY.—Incorporation of company; power to erect gas-works in the parish of St. Paul, Deptford, in the county of Surrey, and to supply gas to the London, Brighton, and South Coast; the South-Eastern; the London and South-Western; and the London, Chatham, and Dover Railway Companies, within the parishes specified.

THE LONGTON GAS COMPANY, LIMITED.—Incorporation of company; repeal or alteration of Memorandum or Articles of Association; supply of gas to Longton and its neighbourhood; increase of capital; extension of works.

THE STOURBRIDGE GAS.—Act amendment.

TRURO WATER.—Incorporation of company; construction of works; amendment or repeal of Act; and other purposes.

UNITED GENERAL GASLIGHT COMPANY.—Repeal of Charter and Acts; reconstruction and division of company; apportionment and regulation of capital; powers to light Dublin, Kingstown, Bray, and adjacent districts; sale or transfer to Alliance Gas Company.

THE UNITED GENERAL GASLIGHT COMPANY.—Repeal of Charter; division of works and capital; incorporation of company to light Limerick.

VENTNOR GAS AND WATER.—Incorporation of company; purchase of gas-works and water-works belonging to Augustus Frederick Livesay; powers to supply gas and water.

WALKER AND WALLSEND UNION GAS.—Amalgamation of the Willington Gas Company with the Walker and St. Anthony's Gaslight Company Limited; incorporation of amalgamated company; powers to supply gas to the parish of Wallsend, and parts of the parishes of Long Benton, and Tynemouth, in Northumberland; power to lease or sell to, or amalgamate with, the Newcastle-upon-Tyne and Gateshead Gas Company, or the borough of Tynemouth Gas Company; provisions as to share and loan capital.

WANDSWORTH AND PUTNEY GAS.—Amendment of Act; extension of limits of supply; increase of capital; powers of borrowing; and other powers.

WEARDALE AND SHILDON DISTRICT WATER-WORKS.—Incorporation of company; powers to raise capital; to construct water-works; take lands and water compulsorily; to supply water; levy rates; and for other purposes.

WEST MIDDLESEX WATER-WORKS COMPANY.—Extension of limits of supply; amendment of Acts.

WIGTON WATER-WORKS.—Incorporation of company; powers to construct water-works; take lands and waters compulsorily; to supply water in the township of Wigton and other places on the line of or near the proposed conduits; provisions against the waste and misuse of water; powers to levy rates; and for other purposes.

WORKSOP AND SHIREOAKS GAS.—Incorporation of company; powers to erect gas-works and supply gas; purchase or lease and extension of existing gas-works, &c., of the Worksop Gas Company; power to that company to sell of lease such gas-works, &c.; to acquire and hold land; repeal or amendment of Acts; incorporation of general Acts; levying of rates; and other purposes.

Legal Intelligence.

COURT OF QUEEN'S BENCH.

WEDNESDAY, NOV. 15, 1865

(*Sittings in Banco, before Lord Chief Justice* COCKBURN, *and Justices* MELLOR, SHEE, *and* LUSH.)

REGINA, ON THE PROSECUTION OF HUGHES, APPELLANT; *v.* THE OVERSEERS OF BILSTON, RESPONDENTS.

Mr. M'MAHON, Q.C., and Mr. D. D. KEANE, Q.C., appeared for the appellant, and Mr. STAVELEY HILL for the respondents.

This was an appeal against a poor-rate of the parish of Bilston, of the 24th of May, 1864.

The following is an extract from the rate-book of the assessment which was the subject of this appeal:—

Number.	Name of Occupier.	Name of Owner.	Description of Property rated.	Name and Situation of Property.	Gross estimated Rental.	Rateable Value.
					£. s. d.	£. s. d.
2781	Isaac Hughes.	Richard Dobb and John Southam.	House.	New Village.	11 5 9	9 0 0

The appeal was heard at the Staffordshire Epiphany Quarter Sessions, 1865, and the court found that the gross estimated rental was £9. 2s., and that, to arrive at the net rateable value, the appellant was entitled to a deduction of the following sums as yearly outgoings, which the overseers ought to allow under sec. 1 of the Parochial Assessment Act, 6 & 7 Will. IV, c. 96—viz.:

Repairs and insurance at one-sixth of rental. . .	£1 16 4
Poor-rates	1 8 8
Sewer-rates	0 4 5
Highway-rate	0 3 4
Town improvement-rate	0 8 10
Water-rate	0 11 4
	£4 12 11

In accordance with such finding, the court reduced the gross estimated rental to £9. 2s, and the net rateable value to £4. 9s. 1d., subject, as to the last of the above deductions of 11s. 4d. for water-rate, to the opinion of the Court of Queen's Bench upon the following case:—

The township of Bilston is supplied with water, partly from pumps and partly from works, by the Dudley Water-Works Company, under an Act 4 Will. IV., c. 42, and it was entirely in the option of owners or occupiers to accept or refuse the water supplied under that Act.

By the Bilston Improvement Act, 1850 (13 & 14 Vic., c. 96), the Bilston Commissioners have power to purchase the works of the Dudley Water-Works Company within Bilston, and to hold the works so purchased in the same manner and with the same powers in all respects as if the same had been made, constructed, or purchased by the commissioners under the powers and for the purposes of the Bilston Improvement Act, and they were compellable, at the request of the owner or occupier of any house, or part of a house, in any street in which any water-pipe of the commissioners would be laid, or of any persons who, under the provisions of any Act incorporated with the Bilston Improvement Act, should be entitled to demand the supply of water for domestic purposes, to furnish to such owner or occupier, or other person, a sufficient supply of water for their domestic uses, at certain rates therein specified.

Under sec. 76, the commissioners have power to levy a water-works rate for the purpose of purchasing, making, and maintaining water-works, but no such rate has, in fact, ever been made or levied.

In the year 1853 the commissioners purchased from the Dudley Water-Works Company all the plant and main of the company within the township of Bilston, and since that time have supplied water to all persons desirous of accepting it at a regular scale of prices, of which the following is a copy of the one at present in force:—

THE BILSTON IMPROVEMENT ACT, 1850.—WATER-RENTS.

Revision of the Scale of Charges.

Notice is hereby given, that the Bilston Township Commissioners and Local Board of Health have found it necessary to revise the scale of charges, and that the following will be the quarterly payments for water consumers after the 25th of September, 1863:—

Charges for Domestic Consumption.

Owners composition payable whether occupied or not.

Tenements rated under						£6	7	8	9	10
To pay quarterly						2/	2/6	2/9	3/	3/4
Occupiers charges.										
Premises rated at	£11	12	13	14	15	16	17	18	19	20
To pay quarterly	3/10	4/2	4/6	4/10	4/10	5/2	5/6	5/10	6/	6/

&c., &c.

Charges for trade purposes by special arrangement.—By order of the board,

Commissioners Office, Church Street, Bilston,
Nov. 18, 1863.

R. H. HARPER, Clerk.

The water is supplied by pipes from the mains to the houses, and when the water-rent is in arrear or unpaid after notice, the supply is cut off and withdrawn. About one-half of the inhabited houses are supplied with water from these water-works, and pay rent for the same to the commissioners, and as to these it is a matter of arrangement between the landlord and tenant to which of the two the water is supplied, and which of the two pays the water-rent. The inhabitants of those houses to whom there is no supply from the water-works procure their water from their own wells or other sources. In the present instance, the water is supplied from the water-works; the landlord pays the water-rent, and the occupier has nothing to do with it.

The appellant contends that the payment for water is a deduction to which he is entitled under the Parochial Assessment Act, as being an expense necessary to maintain the premises in a state to command such rent.

The respondents contend that, inasmuch as it is optional with the owner and occupier of the house whether they will take their supply of water from the commissioners, or obtain it from other sources, it is not a necessary expense or outgoing which they ought to allow as a deduction from the rateable value

If the court shall be of opinion that the deduction ought to be allowed, the rate is to stand as reduced—viz., at £4. 9s. 1d.; if on the contrary, an addition of 11s. 4d. is to be made to the sum to which the rateable value was reduced by the Court of Quarter Sessions.

Mr. M'MAHON, on behalf of the appellant, argued that this deduction for the water-rate ought to be allowed. The words of the Parochial Assessment Act (6 & 7 Will. IV., c. 96), sec. 1, are: "No rate for the relief of the poor shall be allowed by justices, or be of any force, which shall not be made upon an estimate of the net annual value of the several hereditaments rated thereunto—that is to say, of the rent at which the same might reasonably be expected to let from year to year, free of all usual tenants rates and taxes, and tithe commutation rent-charge, if any, and deducting therefrom the probable average annual cost of the repairs, insurance, and other expenses, if any, necessary to maintain them in a state to command such rent." The quarter sessions have found as a fact that the appellant is entitled to a deduction in respect of water-rent of 11s. 4d.—that is, they have found that the payment of the water-rent, which was by the landlord here, was a necessary expense to maintain the premises in a state to command the rent obtained.

Justice MELLOR: Suppose the water-rent is not paid, and the water is cut off, could the deduction be claimed then? Or, suppose the tenant obtained his water from a pump on the premises, ought the expenses of the pump to be deducted?

Mr. M'MAHON: The expense of keeping the pump in repair ought to be deducted. In *Regina v. Hall Dare* (34 L. J. 17, M. C.), it was held that the sewers-rate and expenses of sewerage works ought to be allowed as deductions in estimating the net annual value.

Justice MELLOR: Though it is called a water-rate, it is in reality money paid for so much water. The parties need not take it unless they like

Justice LUSH: Suppose it was for gas instead of water, and by arrangement the landlord paid the charge, could it be claimed as a deduction?

Mr. M'MAHON: It is submitted on the facts and finding of the quarter sessions in this case, the water-rent should be allowed as a deduction.

Mr. STAVELEY HILL, for the respondents, was not called upon.

Lord Chief Justice COCKBURN, in delivering judgment, said: This case is quite clear. The question is, whether the water-rent is to be deducted in estimating the net annual value of the appellant's premises for the purposes of the poor-rate. I am of opinion that it ought not. The expenses to be deducted are such as are necessary to keep the premises in such a position as to command the rent obtained for them. The deductions have nothing to do with what the landlord agrees to find, and what the tenant would have to find for himself but for such agreement on the landlord's part.

Justices MELLOR and SHEE concurred.

Justice LUSH: I am of the same opinion. The payment for water has no more to do with the necessary expense of keeping the premises in such a state as to command the rent than the payment for gas.

The judgment was therefore for the respondents.

WESTMINSTER, WEDNESDAY, DECEMBER 6.

MEDEX *v.* THE GASLIGHT AND COKE COMPANY.

Mr. GROVES, Q.C., Mr. COLERIDGE, Q.C., and Mr. MATHEW, appeared for the plaintiff; Mr. DENMAN, Q.C., and Mr. BESLEY were counsel for the defendants.

This was an action to recover compensation for damages caused by an explosion of gas. The plaintiff was a tobacconist, carrying on business at No. 368, Oxford Street, and his premises were insured in the Law Fire Office. The insurance company having given him a bond, brought this action in his name to recover the amount which they had paid to him under their policy for damages occasioned by an explosion of gas which occurred on his premises on the 23rd of September, 1863, and which they alleged was attributable to neglect on the part of the gas company.

A special jury had been summoned to try the case, but on the names being called, only eight jurymen appeared in the box.

The CLERK of the COURT inquired whether a *tales* was prayed.

The learned counsel on both sides declined to do so.

Mr. GROVES said the plaintiff only had notice on the previous Monday that the case would be in the list for that day.

Lord Chief Justice COCKBURN said he was not entitled to any notice at all.

Mr. DENMAN said the case might stand over till the next day.

Lord Chief Justice COCKBURN said he could not allow that, as there was other business for the court, and he made it a rule that when a case went off by the default of either party, it should go at the bottom of the list for the next sittings. He would wait a quarter of an hour, and then if the other special jurors did not answer to their names, and neither side prayed a *tales* the case should not simply be made a *remanet*, but should be placed last on the list.

After the lapse of a quarter of an hour the names were called again, and no other jurymen answering, the case was postponed.

COURT OF EXCHEQUER.

WESTMINSTER, WEDNESDAY, Nov. 29.

(*Before Mr. Baron* MARTIN *and a Special Jury.*)

HEDLEY *v.* DETHICK.

Mr. O'MALLEY, Q.C., Mr. DAY, and Mr. LANYON appeared for the plaintiff; and Mr. MONTAGUE CHAMBERS, Q.C., and Mr. ARCHIBALD for the defendant.

In this case the plaintiff, who is a gas engineer, carrying on business in the Poultry, sued the defendant, who is a well-known contractor for sewerage works, for the sum of £76. 13s. on account, as stated in the declaration, "of work and labour done, professional advice, and materials supplied." The defendant paid £52. 10s. into court, and as to the balance he pleaded "never indebted."

The following are the particulars of the plaintiff's demand:—

In the Exchequer of Pleas.—Between Tom Abercrombie Hedley, Plaintiff, and William Dethick, Defendant.

This action is brought to recover £76. 13s., being the amount due to the plaintiff on the following items of account:—

1865.		£	s.	d.
Feb.	17.—To attending consultation with Mr. Porter, and attending at Greenwich to inspect pipes, &c.	15	15	0
„	18.—Writing report as to my examination of pipes at Greenwich, and opinion as to cause of explosion			
June	21.—Consultation with A. Lindo, Esq.	2	2	0
„	22.—Consultation with A. Lindo, Esq.; instructions for plans and section	5	5	0
„	23.—Consultation with A. Lindo; correcting draft of evidence	5	5	0
„	24.—Attending at Messrs. Lindo's offices with draft of evidence and plans; giving instructions for preparing pipes	2	2	0
„	26.—Alteration of plan; attending at Messrs. Lindo's offices	1	1	0
„	27.—Attendance at offices of the Phœnix Gas Company, to inspect pipes, meters, &c.	5	5	0
„	30.—Attending in court	5	5	0
July	1.—Attending in court	5	5	0
„	3.—Attending in court and assisting in conducting the case; consultation, after four o'clock, at the chambers of E. James, Esq., and Horne Payne, Esq.	7	17	6
„	4.—Attendance at court, assisting in conducting the case, giving evidence, &c.	7	17	6
	Plans and sections	10	10	0
	Costs of pipe, time, &c.	2	2	0
	Expenses to Greenwich, cabs, &c.	1	1	0
		£76	13	0

Above are the particulars of the plaintiff's demand herein delivered under order of Mr. Baron Martin, dated the 1st day of November, 1865.

Dated this 2nd day of November, 1865.—Yours, &c.,

T. A. TIBBITTS, Plaintiff's Attorney.

To Messrs. Lindo and Sons, Defendant's Attorneys.

Mr. O'MALLEY, in opening the case, stated this action arose in connexion with a trial which took place in July last, in the City of London, before the Lord Chief Baron,* in which the defendant was sued by the Phœnix Gas Company for damage done to one of their mains at Greenwich, through which damage an escape of gas took place, resulting in a serious explosion and destruction of property. It appeared that in February last the defendant was engaged under a contract with the Metropolitan Board of Works in the construction of a sewer along Coltman Street, Greenwich, and that during the progress of that work the explosion took place. It became a matter of great importance to ascertain on whom the responsibility of the damage rested, the Phœnix Company insisting that the injury to their main, which led to the escape, arose from negligence on the part of the servants of the defendant in the performance of their duty. Mr. Dethick being threatened with legal proceedings sought the advice of Mr. Hedley, as a person well able to enlighten him on the subject of his responsibility, and to ascertain to what cause the explosion was attributable. Accordingly Mr. Porter, the defendant's foreman, called upon Mr. Hedley and entered with him very fully into the inquiry. Mr. Hedley afterwards proceeded to Greenwich, and there made such an examination as the state of the place permitted. The result of his investigation being to convince him that Mr. Dethick had not injured the main of the Phœnix Gas Company. He also discovered that the escape of gas had arisen in consequence of the improper way in which, at some time or other, the main had been tapped for the purpose of inserting a service-pipe. He accordingly made a report to Mr. Dethick, and advised him to defend any proceedings which might be brought against him by the gas company. The company afterwards sued Mr. Dethick for the alleged injury to their main; not that the company cared much for that injury which was a very trifling matter, but because they thought that if they could impose upon Mr. Dethick the liability to reinstate that main, they would also be able to cast upon him the responsibilty of compensating the various owners of property damaged by the explosion. The trial of that action took place in July, and between the month of February and the time of the trial, Mr. Hedley's attention was constantly directed to the subject. It was a matter which required a great deal of engineering skill and examination, the question turning very much eventually upon the action of an escape of gas upon the metal of which the pipe was formed. It was one of those inquiries in which every one engaged in courts of law knew how helpless counsel would be without the assistance of an able engineer in the matter. Mr. Hedley in this case pointed out the course to be taken, and gave his advice as to who would be the proper parties to call as witnesses before the court in support of his view of the case. He consulted with the lawyers who had to get up the defence; he prepared plans and sections, and did all that sort of work which was necessary under the circumstances, and he attended the court when the action came on for trial. In the particulars of his claim he charged for one day's attendance when he did not actually attend, the reason being that he only received notice that his attendance would be unnecessary when it was too late to make other engagements for that day. In fact, he had made his arrangements and put off other appointments so as to be able to attend the trial, and it was only casually the night before that he heard this case was not in the paper the next day. On the two following days he did attend, and very anxious and laborious days they were, during which the trial proceeded. The result of the trial was in favour of Mr. Dethick, and that result, as acknowledged by Mr. Dethick himself, and every one who heard the case, was mainly due to the skill, and energy, and attention which Mr. Hedley had bestowed upon it. After this Mr. Hedley sent in his bill, and certainly any one who had been accustomed to look at parliamentary and other charges of this nature must be struck with the exceeding smallness of the amount, considering the time over which the work extended and the position which Mr. Hedley occupied in his profession. The whole amount was £76. 13s., and the defendant, who owed thousands of pounds to Mr. Hedley for his services, had thought fit to pay fifty guineas into court, and to dispute the remainder of the bill. He had never, however, thought proper to point out the items of the account of which he complained. Of course, a young man just embarking in practice as an engineer, and before arriving at any position of eminence in his profession, would charge for his services so much less than one whose reputation was already raised. But the jury would find in the course of this case that some engineers valued their services at a very much higher figure than Mr. Hedley had charged, and there would be abundance of evidence to prove that if he had carried the amount very much further he would have been justified in accordance with the scale of remuneration adopted in the profession and assented to by the public in their dealings with persons engaged in it. Under these circumstances Mr. Hedley came forward and claimed his full demand. It was not so much the amount of money that he cared for, it was that his reputation required he should not give way, his charges being perfectly fair and reasonable, as he (Mr. O'Malley) was convinced the jury would pronounce when the whole of the evidence was laid before them.

* For report of the trial, see the JOURNAL OF GAS LIGHTING, July 11, p. 536.

Baron MARTIN: Had you not better send this case to the Master?

Mr. O'MALLEY: I do not think the Master would know what should be an engineer's charges.

Baron MARTIN: The Master must know what should be paid to a gentleman for such services as these.

Mr O'MALLEY: The Master, I am afraid, would judge of the charges according to the standard of compensation laid down.

Baron MARTIN: He would give what is fair and right. However, go on.

Mr. *T. A. Hedley*, examined by Mr. O'MALLEY.

I am a civil engineer. My attention has been very much directed during the last thirty years to gas-works. I have also had considerable experience from being practically connected with the manufacture of apparatus, the manufacture of gas itself, and the supply of gas to different towns. During the last session of Parliament I was retained in eleven cases—in fact, in nearly all the large cases I am retained. I am not so much consulted by gas companies as by corporations and local boards, and by gas consumers themselves when they wish to build new works. I remember the explosion which took place at Greenwich at the beginning of the year. Mr. Porter called at my office upon the subject in February last. I have never seen Mr. Dethick but once, and that was when I happened to meet him in Guildhall at the time of the trial. I have communicated with his attorney, Mr. Lindo, in reference to it. When Mr. Porter called upon me, he wished me to visit Greenwich, for the purpose of inspecting the damaged pipe, and to make a report to Mr. Dethick upon it. I did so after a consultation with Mr. Porter, and upon my return to London I gave a great deal of thought and care to the subject, so as to arrive at a decision in reference to the cause of the accident. Having arrived at that, and consulted another gentleman, to see if he would concur in the opinion I had formed, I then wrote my report.

Mr. CHAMBERS called for the production of the report, which was handed up and read by the associate, as follows:—

28, *Poultry, London, E.C., Feb.* 18, 1865.

To William Dethick, Esq., contractor to the Metropolitan Board of Works, Greenwich.

Sir,—In compliance with the wish of your manager at Greenwich, I attended there on the morning of the 17th instant, and examined the pipes contiguous to the house in Thames Street, wherein the explosion of gas lately took place.

I found a 2-inch main laid near the kerbstone and parallel to the sewer lately completed by you, in which are tapped two service-pipes, one on the side leading to the house, and from which the supply of gas was received.

The other on the top, crossing the sewer, and leading, I presume, to a distant public lamp.

The first service was only partially exposed, so I cannot arrive at any conclusion as to its soundness.

The main where the second service has been attached is broken, and, from appearances, must have been so for several years, and I believe the work was originally badly performed, the hole to receive the service being too large, and the main, I have no doubt, weakened by being cut and drilled.

The impregnation of the piece of pipe I saw with gas is proof of the breakage having existed some time, and I advise that the piece of pipe should be kept free from exposure to the atmosphere.

From the explanation I received, and from the result of my examination, I can only arrive at the opinion that the cause of the explosion—that is, supposing that the service-pipe supplying the house is found to be sound, was that the frost affected the broken portion of the pipe, and the gas escaping therefrom, passed along the main, and made its way into the house by the side of the first service-pipe.

Had the damage been caused by your operations, the gas would have found its way along the service-pipe to the trench or excavation in which your men were at work.

The service-pipe, however, crossing your work was, however, solidly embedded in the earth, between 3 and 4 feet from the broken main, which renders it quite impossible that it could have been caused by your operations.

You having served the requisite notice to the gas company, rendered it imperative for them to see to the safety of those pipes, as it was quite impossible for you to know if the service crossing your work was laid for the supply of the house where the explosion took place, or for the purpose for which it is now discovered it was laid.

I believe that, from my practical knowledge of the subject, that plenty of evidence can be procured to support my view of the case, and to enable you to defend any proceedings that may be commenced against you.—I am, sir, yours truly,

TOM A. HEDLEY,
Civil Engineer (gas and water).

Examination continued: That report, though short, was the result of a good deal of thought and consideration, and was prepared after consultation with a friend. I introduced a theory, which was opposed at the trial by some eminent men, but I was successful in showing the correctness of my views.

Mr. O'MALLEY: The appearance upon which you relied at the point of fracture was very much controverted at the trial?

Mr. CHAMBERS: If we are to go into what took place at the trial, there will be no end to this case.

Baron MARTIN: The question for the jury is whether the fifty guineas paid into court is or is not enough for the services rendered. [The learned judge here read the particulars of the plaintiff's demand.]

Examination continued? I afterwards had several conversations with Mr. Lindo on the matter, and devoted a great deal of time to it, which resulted in my doing certain work, for which I charge in the consultations.

Mr. CHAMBERS: I shall confine you to the particulars of your demand.

Baron MARTIN: He must recover according to his particulars—I have read the whole of them.

Mr. O'MALLEY: They are very short, and will easily be disposed of by the jury. We prefer the verdict of the jury to having it sent to the Master.

Examination continued: I gave directions for the preparation of plans and sections. I always charge five guineas for a consultation, and if Mr. Dethick had not been a contractor these consultations would have been so charged. Being a contractor I only charged two guineas, whereas I should have charged five guineas, or even ten, according to the circumstances. I have charged for an attendance on the 30th of June. I did attend at Guildhall that day, but the cause was not in the paper. On the afternoon of the previous day I learned by accident, on calling at the solicitor's office, that the cause would not be in the paper; but I had devoted the whole of that day to the service of Mr. Dethick, and had arranged my other business so as to be able to attend. I was not in a position to alter those arrangements. The cause was in the paper on the 1st of July, but did not come on for trial. I was in attendance the greater part of that day. On the 3rd, which was Monday, the case came on, and lasted the whole of that day and the next. I was in attendance throughout the trial, assisting counsel to examine the witnesses. There were eighteen witnesses on each side. Mr. Hawksley led on one side, and I led on the other. At the close of the first day I attended two consultations in two different buildings.

Mr. O'MALLEY: You have charged "Attending in court and assisting in conducting the case. Consultation after four o'clock at the chambers of E. James, Esq., and Horne Payne, Esq., £7. 17s. 6d." Now, what is your ordinary charge for a day's attendance in court?

Witness: I always charge 10 guineas per day.

Mr. CHAMBERS: I shall object, in point of law, to his power to recover anything as a witness attending the court, save and except what is allowed by the rules of the court.

Baron MARTIN: He says, "I charge 10 guineas per day."

Witness: My regular charge is 10 guineas a day when I attend and conduct a case.

Baron MARTIN: "Conduct a case"—you have a counsel to do that.

Mr. O'MALLEY: Every one knows it is done. This case involved chemical inquiries as well as engineering?

Witness: It did.

Mr. O'MALLEY: A subject with which you are well acquainted, and which possibly you discovered in the course of the case that counsel were very ill acquainted with it.

Mr. CHAMBERS: You cannot say that. I should think my friend must fancy he is before a parliamentary committee.

Examination continued: These charges are not only fair and reasonable, but they are less than I should have charged if I had been engaged by the gas company. I made the reduced charge because Mr. Dethick was a contractor. All the work mentioned in these particulars was done, and upon reference to my diary, I find that on several occasions when I had a consultation with Mr. Lindo I made no charge whatever.

Mr. CHAMBERS: Stop; that has nothing to do with the case.

Cross-examined by Mr. CHAMBERS: I am a civil and consulting engineer in practice in London. I am not the engineer to any gas company. If I were my services would be less valuable than they are now. I am entirely dependent upon my profession as an engineer. I say most distinctly I am not an engineer to any gas company, large or small, existing in Great Britain; neither do I wish to be, nor would I accept an appointment if it was offered to me. I value my services at a higher rate because I am not so engaged.

Mr. CHAMBERS: I am only anxious to get at the rate at which you value your services as distinguished from those of an engineer, consulting or otherwise, to a gas company. Now we must come a little to these details, for that is really what we have to try. I see you charge "Feb. 17—To attending consultation with Mr. Porter, and attending at Greenwich to inspect pipes," and then writing report, &c., £15. 15s. Did you not, in the first account sent in charge £5. 5s. for that attendance?

Witness: You have the account before you, I suppose.

Mr. CHAMBERS: Now will you tell me how long you were at Greenwich inspecting one of these pipes, because you could not see the other you say in your report. How long were you there?

Witness: From the time I left the station till I got back there again it was about an hour and a half, or perhaps two hours.

Mr. CHAMBERS: Will you swear it was an hour?

Witness: Yes; it was within two hours. I am sure it is not worth taking up the time of the jury on such a point.

Mr. CHAMBERS: We shall be able to ascertain that by-and-by. Their time, I dare say, is as valuable as yours.

Witness: A great deal more so, I hope.

Mr. CHAMBERS: Can you tell the time of day when you inspected this pipe?

Witness: Some time in the afternoon.

Mr. CHAMBERS: Had you, the "great consulting engineer," nothing else to do that day?

Witness: I had not.

Mr. CHAMBERS: Perhaps the next day was a vacant day?

Witness: I am sure I cannot tell you. Just about that time I was getting very busy indeed.

Mr. CHAMBERS: That was what led me to ask the question.

Witness: You are disengaged sometimes, I suppose.

Mr. CHAMBERS: Oh, yes; but I am afraid my services are not so highly appreciated as yours are.

Witness: You would not like to be retained as I was without a retaining fee.

Mr. CHAMBERS: You had a consultation with Mr. Lindo on one occasion, for which you charge two guineas.

Witness: I had a great many. I must be allowed to explain that the consultation includes the time which was occupied after the consultation.

Mr. CHAMBERS: Did Mr. Lindo bring you a plan upon that occasion which Mr. Porter had drawn?

Witness: He brought me a plan which was of no use.

Mr. CHAMBERS: Had Porter drawn it?

Witness: I do not know.

Mr. CHAMBERS: Did he tell you who had drawn it?

Witness: I do not know; I think he did.

Mr. CHAMBERS: Did he leave that plan with you to have copied?

Witness: No.

Mr. CHAMBERS: Will you swear it?

Witness: Yes.

Mr. CHAMBERS: Was the plan left with you?

Witness: It was.

Mr. CHAMBERS: Then what did he leave it with you for?

Witness: Because I said it was of no use, and I was to make a plan which would be of use.

Mr. CHAMBERS: How many plans did Mr. Lindo leave with you which were of no use to make plans that would be of some use?

Witness: He left one plan and one section.

Cross-examination continued: I cannot say how long I had them. I know they were in the hands of my draughtsman for two days, and that he put all other work on one side to attend to them. I have charged ten guineas for plans and sections. Without them Mr. Dethick would not have got the verdict. I did not go to Greenwich more than once. The guinea charged for "expenses to Greenwich, cabs, &c.," includes the expense of a cab to London Bridge station, railway fare there and back, and cab to my house at St. John's Wood, also cab hire to Guildhall from the Poultry on the day of the trial. The charge for pipe, &c., two guineas, includes the cost of the material and the foreman's time in looking after it. It was an exact model of the pipe in the ground, and I employed a man to make it. The man who made it gets 5s. a day, and the man who looked after it gets £100 a year. The pipe itself is worth 15s. or 16s. I employed one of the men at the gas-works with which I am connected in the country to attend to it. The charge for consultation with Mr. Lindo, taking instructions for plans and sections, includes the time I took writing to my draughtsman with instructions to have them made. On the 23rd I have charged five guineas for correcting draft of my evidence. I do not know who prepared the proof. I had a long consultation with Mr. Lindo over it, and then I took it to my office to consider it, which took much time. You will see that in a large number of places corrections are made which could only have been done with thought, time, and attention. I am under the impression that there is other evidence in my own writing.

Mr. CHAMBERS: Will you venture to swear that you ever prepared any memorandum at any time, save and except the report sent in, and the corrections of the evidence drawn out by Mr. Lindo?

Witness: I am very strongly under the impression that when I returned this, I returned some evidence in my own writing.

Mr. CHAMBERS: Will you swear it?

Witness: No. In twelve or thirteen other cases this year I have done it.

Cross-examination continued: On the 24th of June I charge for attending at Mr. Lindo's office with draft of evidence and plans, giving instructions for preparing pipes, £2. 2s. I did not see any one there on that occasion. I cannot say whether I went myself or sent a messenger. Messrs. Lindo's office is about five minutes walk from mine. On one occasion I went myself, and saw Mr. Lindo, when he gave me the instructions for preparing the pipe for which attendance I charge £2. 2s. On the other occasion a messenger left them—I cannot say which that was. On the 24th, I received instructions from Mr. Lindo to make the pipe, therefore I must have seen him. On the 26th, there is a charge for alteration of plans. There was a clerical error which my draughtsman in making them from the plans given him copied, and Mr. Lindo brought them back and asked me to correct them, for which I charge 21s.

By the COURT: I did not go down to Greenwich to make the plans. The defendant's attorney brought some plans with him which had been made by some one in Mr. Dethick's employ.

Baron MARTIN; Then you made a copy of them, or an imitation of them?

Witness: Yes.

Mr. CHAMBERS: You worked from those useless plans?

Witness: Yes. My draughtsman made the plan. He lives at Uxbridge. He is not here now.

Cross-examination continued: On the 27th day of June, I charge five guineas for attending at the office of the Phœnix Gas Company, to inspect pipes, meters, &c. Their office is at Bankside, and the damaged pipe had been brought up there from Greenwich for inspection. I do not charge the five guineas for the two hours only that I took to go and examine it, but for the time occupied before and afterwards. First of all I received a letter the day before, and then I had to write a reply. If Mr. Dethick, or his attorney had called upon me with this account and asked for an explanation they should have had it.

Mr. CHAMBERS: Pray don't make speeches. I shall have to put in all the correspondence if you talk in that way. Now, on the 30th of June you charge for attending the court, five guineas, but you did not attend?

Witness: I have said so before; I did not.

Mr. CHAMBERS: On the previous afternoon, were you not distinctly told that the case would not come on that day?

Witness: Will you put it in another way?

Mr. CHAMBERS: Were you not distinctly told on the previous afternoon that the case would not come on?

Witness: You are putting it in a way which is not fair.

Mr. CHAMBERS: Answer me the question, sir, on your oath. Were you not distinctly told that the case would not come on?

Witness: I was informed. By a purely accidental circumstance I called at the office of the attorney to suggest something to Mr. Lindo, and he said the case would not come on. I ought to have had a written notice. I had no time to make arrangements for the following day.

Cross-examination continued: I cannot tell what time in the day it was that I was told. It was some time between eleven and four o'clock, which are my office hours. I went to Guildhall the next day to see how the case would stand for the following day. I had other engagements at that time. During the parliamentary session I had five committees a day.

Baron MARTIN: But Parliament was dissolved then, and the new Parliament was being elected.

By Mr. CHAMBERS: I had been subpœnaed about two or three days before to attend the trial, and received a guinea with the subpœna. On the day I received it, I had a consultation for which I charged nothing. I attended the trial on the 3rd and 4th and assisted in conducting the case, and on the first of those days, there were two consultations afterwards. I have charged £7. 17s. 6d. each day. I was examined as a witness. My cross-examination was worth all the money. I mean to say there is not a gentleman in that jury-box who would undergo what I underwent in that cross-examination for twice the money.

Baron MARTIN: Who was it by?

Witness: Mr. Huddleston.

Mr. CHAMBERS: Your sufferings must have been very severe if they were worth all the money.

Witness: They were. I would not have gone through them for that.

Mr. CHAMBERS: Then try the experiment, and don't be a witness again.

Witness: I shall, and charge as usual for my services.

Mr. CHAMBERS: Then I dare say you think you won the case?

Witness: I am sure I did, from the cross-examination of Mr. Huddleston.

Mr. CHAMBERS: It was entirely you who won the case. If you had not been there it would have been all up with poor Dethick?

Witness: I think so. Mr. Huddleston did not cross-examine the other witnesses as he cross-examined me. (Mr. Huddleston entered the court at this moment, and his presence occasioned some laughter.)

Mr. CHAMBERS: But Dr. Letheby was examined and cross-examined?

Witness: Very slightly—very gentlemanly.

Cross-examination continued: Mr. Grant, of the Metropolitan Board, and other engineers were called for the defendant, but it was I who suggested the theory which won the case. My evidence on oath proved that my theory was correct.

Re-examined by Mr. O'MALLEY. Mr. Huddleston cross-examined me to shake my testimony. My withstanding it proved the stability of my evidence. He said I had conducted the case like an attorney's clerk, for all the time I was by the counsel trying to assist the case.

Mr. O'MALLEY: You were asked about being engineer to any company. Has there been a contest going on for the last three or four years between the inhabitants of many towns and the gas companies?

Witness: There has been for many years, especially during the last three or four.

Mr. O'MALLEY: Which has resulted in cheaper gas and better gas?

Witness: Yes.

Baron MARTIN: Do not let him swear that.

Mr. O'MALLEY: Unfortunately your lordship has not been living where this has been in operation.

Witness: We have made it much cheaper and have improved the quality.

Mr. O'MALLEY: However, for many years you have taken the view that gas is not sold so cheap nor so pure as it ought to be.

Witness: I have taken up that view and still hold it, and I have been consulted by corporations and others on the subject. I have recently been consulted by the Corporation of London, and they paid me five guineas for half an hour.

Mr. *G. W. Stevenson*, examined by Mr. LANYON.

I am a civil engineer at Halifax, and engineer to the corporation of that town. I have had experience in matters connected with gas for the last twenty years, both at Halifax and elsewhere. I am engineer to several gas companies at the present time, and have been engaged before many parliamentary committees upon the question of gas supply. I know the plaintiff very well; he takes a front-rank position in the gas engineering world. The ordinary rate of remuneration for engineers in his position is ten guineas per day. I have been paid that amount frequently; I do not always charge ten guineas a day. I have seen the items of Mr. Hedley's account. I think, considering the services he rendered to Mr. Dethick, the sum total of his charge, without myself analyzing the items, is very moderate indeed, and I think Mr. Dethick probably——

Mr. CHAMBERS: Don't think what Mr. Dethick ought to do.

Mr. LANYON: Here is a charge of fifteen guineas for making a report among other things. You have heard Mr. Hedley's evidence as to what he did for that. Do you think that an extravagant charge?

Witness: I would rather speak upon the sum total of the bill than upon the items, because I do not know the time given to each of these particulars.

Mr. LANYON: You think it a fair and reasonable charge to make?

Witness: I think the sum total is a reasonable sum. He might have fairly charged more. I think he would not have been overpaid with 100 guineas.

Cross-examined by Mr. CHAMBERS: Have you condescended to look at the items?

Witness: I have looked at the items without condescending.

Mr. CHAMBERS: When?

Witness: To-day and previously.

Mr. CHAMBERS: Did Mr. Hedley show them to you?

Witness: He sent me a copy of his bill.

Mr. CHAMBERS: Did you examine the items?

Witness: I examined the items.

Mr. CHAMBERS: Now you include in this estimate his attendance at court and everything, considering the services that he has rendered in the lump?

Witness: Yes.

Mr. CHAMBERS: Do you observe that some of the services he has rendered have been "attending in court, giving evidence, and conducting the case." Did you notice that?

Witness: I understand this, that Mr. Hedley was the engineer who was entrusted by Mr. Dethick to get up the engineering evidence in the action brought against him by the Phœnix Gas Company, and I think, considering the successful manner in which——

Baron MARTIN: Looking at the result—that he won the cause—it is your opinion considering the successful result that for an engineer 76 guineas is a reasonable charge?

Witness: It is.

Mr. CHAMBERS: Supposing the jury had not believed him, and the result had been unsuccessful, what would you have said then?

Witness: I think it would have been too much to charge.

Mr. CHAMBERS: Then the result of the verdict being that Dethick gained the day, you consider that he has undercharged him?

Witness: I think that he is not overpaid by the payment of £76. 13s.

Mr. CHAMBERS: Considering the result?

Witness: As we always do.

Mr. CHAMBERS: Is that the way in parliamentary committees?

Witness: Very much indeed.

Mr. CHAMBERS: Are you paid according to the result?

Witness: Very often. It is very often an agreement beforehand.

Mr. CHAMBERS: I believe you are sworn to give evidence before parliamentary committees?

Witness: Undoubtedly.

Mr. CHAMBERS: Have you ever acknowledged to any parliamentary committee that if your side was not successful you would be paid less?

Witness: I have never been asked the question. If I had I should have answered it.

Cross-examination continued: This bill was sent to me by post. I looked through the items. I did not take ten minutes to do it—perhaps five. I have given my opinion as to the fairness of the charge as a lump sum.

Mr. *George Anderson*, examined by Mr. O'MALLEY.

I am a consulting engineer, and have had some twenty years experience. I am employed annually as a witness in parliamentary inquiries. I have looked at the items of the plaintiff's account. In my judgment they are fair and reasonable. If I, as a stranger unacquainted with the subject, were to form an opinion from the mere statement of account, I might come to a different conclusion; but with my knowledge of the work necessary in a matter of this kind, I think the charge is reasonable. The usual charge for a daily attendance depends upon the standing of a man—from 15 to 5 guineas. Ten guineas is not too much. Mr. Hedley's standing in his profession is a high one, so was his father's before him. He has been all his life in the profession, and I know more—he is a very energetic person in anything he takes up, and gives his whole soul to what he is engaged in.

Cross-examined by Mr. CHAMBERS: Especially when he takes up his own case.

Witness: Well, I have often heard him conduct other persons cases better than he has conducted his own to-day.

Mr. CHAMBERS: Do you mean better than counsel?

Witness: Persons in Mr. Hedley's position often have to instruct counsel.

Mr. CHAMBERS: Counsel never instruct them?

Witness: Generally it is the other way.

Cross-examination continued: I cannot say that my business is principally before parliamentary committees. I have business before them every year. My office is in Adam Street, Adelphi. I am employed by companies and individuals. I get from ten guineas downwards a day, depending very much upon the capacity of the parties to pay. From my experience of explosions it is often very important and difficult to discover the cause. I have known as much as £40,000 stand against a gas company for damages through an explosion.

Mr. CHAMBERS: Is that the reason they called you?

Witness: I suppose Mr. Hedley called me because I understand the matter.

Mr. *Alfred Penny*, examined by Mr. LANYON.

I am a civil engineer, and am largely employed by gas companies. I have heard Mr. Hedley give his evidence to-day, and explain the services rendered for the charges made to the defendant. I think, considering the amount of work he did, they are fair and reasonable. I know Mr. Hedley. His reputation stands very well; he is very much employed, if that is a proof. In a case like that in which he was engaged, a man of his standing would have more weight with a jury,

Cross-examined by Mr. CHAMBERS: Before I was subpœnaed as a witness I happened to be in Mr. Hedley's office on other business, and he asked me to give evidence. I knew from the public papers what service he had rendered. It was a question of interest to professional men, and I made myself master of it. Mr. Hedley said very little indeed to me about it. He said he was bringing an action against Mr. Dethick, to recover a sum of £60 or £70 in this matter, and asked me if I would give evidence as to the fairness of the charges. I knew what he had been doing, and the gross amount of his charges. He sent me a copy of his bill. I have looked over the items, and my judgment is formed upon the general merits of the case.

Mr. CHAMBERS: Is your judgment founded upon any examination of the items?

Witness: I have looked over the items, but my judgment upon the sum charged is based upon my knowledge of the work done.

Mr. CHAMBERS: Have you been at all guided by the items charged for in these particulars?

Witness: I have not been guided much by them. I dare say the bill was made out without reference to coming into a court of this kind.

Baron MARTIN: Let me understand. If a gentleman in your profession goes to an attorney's office, and is there ten minutes or half an hour, is it usual to charge five guineas for that?

Witness: I cannot say it is.

Baron MARTIN: How, then, can you form a judgment if you do not know the time occupied?

Witness: I form a judgment by knowing what was done in the whole case. I know that Mr. Hedley had the conducting of this case, if I may say so without offence to the gentlemen at the bar, and upon that I form my judgment as to what his charges should be.

Mr. CHAMBERS: I am sorry to say that we cannot charge for our fees.

Mr. O'MALLEY: That is the case for the plaintiff.

Mr. CHAMBERS said, before he proceeded to address the jury, he would take the opinion of his lordship upon a point of law, which if his view were correct, would cut down the plaintiff's charges below the fifty guineas paid into court. Looking at the items of the accounts, his lordship would find that one head of claim was founded upon the duties of the plaintiff as a witness in the case of *The Phœnix Gas Company v. Dethick*, and the proposition which he (Mr. Chambers) submitted to the court would be that in respect of the plaintiff's duties and business as a witness in attendance at the court, it was, in the first place, very doubtful whether he could maintain any action at all; and, in the second place, that if he could there was a fixed scale of payments to witnesses, scientific or otherwise, established by the law of the land. The fixed fees with reference to engineers and persons of that description, for each day's attendance, were under the head of "Allowance to witnesses," as follows:—"Engineers and surveyors per diem, £1. 1s.; if resident at a distance from the place of trial, £1. 1s. to £3. 3s." Here, however, the witness did not reside at a distance.

Baron MARTIN: Be good enough to tell me are these fees fixed in pursuance of directions in an Act of Parliament?

Mr. CHAMBERS: Under the Common Law Proceedure Act the court is empowered to make these rules, which are binding.

Baron MARTIN: That is the very thing I doubt. My impression is they are simply directions of the court to the taxing-master.

Mr. CHAMBERS: As to the sum which he is to allow to witnesses.

Baron MARTIN: You say that as to the services of witnesses the directions to the Master are to be the guide.

Mr. CHAMBERS: Yes; If he is entitled to recover anything at all by action at law.

Baron MARTIN: I think that depends upon another circumstance. I should think a person could not recover for his services as a witness in giving evidence as to a transaction which he happened to witness in the street. If he saw a collision between an omnibus and a cab, he could not be allowed to charge beyond what is here allowed; but I think if a man makes himself master of a subject with a view to give evidence at the request of the parties, he stands upon different ground.

Mr. CHAMBERS said he would just refer his lordship to a decision upon the point he was insisting—viz., that it was a great question whether a person who was subpœnaed as a witness, be he a scientific man or an ordinary person, could recover for loss of time. The case he cited was that of *Willis v. Peckham*, the marginal note to the report of which was—"A witness cannot recover compensation for his time though an express promise was given that he should be paid for his loss of time." That case was an action of assumpsit to recover compensation for the plaintiff's loss of time in attendance as a witness, and money counts were added. At the trial, before the Chief Justice, in the sittings after Michaelmas Term, 1820, it appeared that the plaintiff had been served with a subpœna in an action brought by the defendant, who promised the plaintiff to pay him for his time, and he charged in his bill £3. 3s. as having been so paid to Willis, which sum was received but never paid to him. The Master had refused to allow for loss of time, but had allowed it under the head of general ex-

penses. Counsel for the defendant contended that the charge could not be maintained; that the attendance of the witness was a public duty; and that he could recover for expenses only, and that the express promise to pay being without consideration could not aid the plaintiff. The learned judge expressed a decided opinion that the action could not be maintained. The jury, notwithstanding, found a verdict for the plaintiff; but leave was given the defendant to enter a nonsuit, and, after argument, the court decided that the witness was bound to remain as a witness under his subpœna, and that compensation for loss of time and attendance could only be allowed to attorneys and surgeons. Another case was that of *Colney v. Goswold*, which was very elaborately argued, and after the court had taken time to consider Lord Tenterden delivered judgment, in the course of which he said: "Assuming the offer to pay the six guineas was evidence of an express promise by the defendant to pay that sum to the plaintiff as compensation for the loss of his time, still if the defendant was not bound by law to pay that sum, the offer to do so not having been accepted, is not binding. If it be a duty imposed by law upon a party duly subpœnaed to attend from time to time to give evidence, a promise to give him any remuneration for loss of time in giving such attendance is a promise without consideration. We think such a duty is imposed by law, and upon a consideration of the Statute of Elizabeth and the decisions upon the subject, we are all of opinion that a party cannot maintain an action for compensation for loss of time in attendance as a witness. We are aware of the practice of allowing between party and party so much a day for professional men, but that practice cannot alter the law." The plaintiff in the present instance, therefore, having as he himself stated been served with a subpœna two or three days before the 30th of June, when the charges in his claim for attendance in court began, was entitled, if entitled to anything, only to one guinea a day, and if the deduction of all that was charged beyond that sum was made, it would reduce his claim below the fifty guineas paid into court.

Baron MARTIN: Should not this have been pleaded?

Mr. CHAMBERS: I think not.

Baron MARTIN: Why not?

Mr. CHAMBERS: There is no occasion to plead that this is an illegal charge or anything of this sort. The plaintiff has to prove that he has a legal charge against us.

Baron MARTIN: I tell you, Mr. Chambers, I should still suggest that between you two gentlemen you should agree to send this bill to the Master; but if you will try it out you must take the result. My own impression is, that this case is one similar to what we see constantly in patent cases, where persons acquainted with scientific subjects come here and sit by counsel and instruct him and then get into the box and give evidence. I was glad to see that at a meeting somewhere one of our most eminent scientific men said that he very much disapproved of that practice; that it was not becoming that the persons who assisted in getting up a case should afterwards go into the witness-box. I very much concur in the opinion, but I do not see how I can say that if a person thinks fit to employ a scientific man to aid him in getting up a case who is under no obligation to do so, and afterwards procures his attendance in a court of law before a jury he ought not to compensate him for it. It is not like a case in which an individual sees something done and is then called upon to give evidence which he is under obligation to do as a matter of duty. In such a case a witness can only be paid according to the rules of the court. It strikes me that is not exactly this case.

Mr. CHAMBERS: I have always been prepared to contend that which I now contend, that such an agreement is contrary to public policy, and to the genuineness and fairness of testimony, and that a man who enters into an agreement to conduct a case, and also to go into the witness-box to swear to it, cannot recover.

Baron MARTIN: Then you must plead that in defence.

Mr. CHAMBERS: But here no such contract is proved.

Baron MARTIN: Mr. O'Malley has no case unless the jury assume that under the circumstances Mr. Dethick engaged to pay that which is fair and reasonable.

Mr. CHAMBERS: My answer to that is that an implied contract will not do. There must be an express contract, and that express contract must be sued upon.

Baron MARTIN: It appears to me that in order to maintain what you have stated you should have pleaded that it is contrary to law to enter into such a contract. There may be an implied contract when a man undertakes to do certain work that the other will pay him for it, although it is not strictly and legally an implied contract. If a man goes to repair a house, although there is no direct contract, it is to be supposed that the person by whom he is employed is to pay him.

Mr. CHAMBERS: My proposition is that in respect of the plaintiff's attendance in court, and that which he did, being a witness, when in court, there is no implication of a contract that he should be paid for anything save and except his attendance as a witness.

Baron MARTIN: I really think the best thing I can do is to say that I will leave the case to the jury; I decline to interfere as to the items in respect to his attendance as a witness.

Mr. CHAMBERS then addressed the jury. He said, although the amount in dispute on the present occasion was small, it had struck him in the progress of the investigation that the principle involved was one of deep importance, and that it was very fit and proper for counsel in such a case to lay down distinctly what they considered to be the law and what they thought ought to be the rule of justice and propriety when claims of this nature were brought forward in a public court of justice. In the course of this inquiry it had been explained, in the full light of day, that which must have astounded every one in this civilized age, that there was a class of persons—he hoped the confession did not apply to the whole profession of engineers and surveyors—who made the charges for their services upon this principle—"If I go into the witness-box and pledge my scientific knowledge and my honesty as a man, upon my oath, and the result of my testimony is to win a verdict, then my charges are large; but if after thus using my energies (for it seemed that the plaintiff was "a very energetic man") swearing according to the best of my desire to win a verdict, the jury find that verdict against me, then my charges will be less." Now of all the frightful principles to avow, that of estimating the right to charge by the success of one's testimony, was, he thought, one of the most frightful. And yet the jury would observe that the plaintiff's second witness, the Halifax engineer, had not the slightest hesitation in coming before them and in the presence of that crowded court to proclaim that that was the way in which he gauged and estimated the value of the services rendered by his co-engineer, the plaintiff. He (Mr. Chambers) would ask, was he right or wrong in saying that in the minds of the jury and of every one present, this appeared to be a principle of the most dangerous description, because the corruption of the witness-box must inevitably be the result if this principle should prevail. He who by the result of a trial could put £100 into his pocket if his side won, and of £50 if it lost, "bet the odds" that he would win. And this was the principle which had been presented to the attention of the jury in the full light of day, and it had been called by one or two of the witnesses "parliamentary practice." the third gentleman who was called seemed to endorse that kind of principle, for he said "Sometimes I charge high and sometimes I charge low;" in other words, no doubt, it meant, "In the elation of victory I am able to claim a great deal more, and shall say that my services are worth so much more because I win." And really one of them did say this—he (Mr. Chambers) could not have believed it had he not heard it with his own ears—"For the services rendered by the plaintiff in the trial of the gas company against Dethick, I think that his evidence was worth all the money." And the jury would observe that the plaintiff himself, acting upon that principle, said, "It was I alone who did it"—

> "I alone with bended bow
> And quiver full of arrows,"

like the modest Norval,—it was "I who saw the foe approaching," or like the mighty Cæsar, "I came, I saw—(I swore) I conquered." And this was the sort of thing with which the jury had that day been entertained by the witnesses. As to Dr. Letheby, who is an eminent chemist, and knows something about gas, although he was called on the trial and examined as to the cause of the explosion—throw Dr. Letheby to the dogs. The plaintiff told them that Dr. Letheby was treated very tenderly by Mr. Huddleston, and so also was some some other scientific man who was called. To them Mr. Huddleston was extremely polite, but he said, "As for me (the great civil engineer), I do assure you it was the most unhappy day of my life when I was cross-examined and tortured by Mr. Huddleston." And then he said, "Would you, gentlemen, take £76. 13s. 0d. to endure such torment? It was quite frightful to stand up in the witness-box and be assailed as I was by the terrible questioning of Mr. Huddleston; I would not do it again for the money; no, not if you were to give me £500 would I be cross-examined by him. The sufferings I endured thereby, the medical assistance that I required afterwards; the lotions and potions and plaisters which were obliged to be administered! I would not endure it again for £500." There was one very good rule of law to which he (Mr. Chambers) desired to call the attention of the jury—viz, that where an action was brought against a person for services rendered, and the charge was made in a lump, to require the particulars of the demand to be furnished so as to enable the defendant and the jury to ascertain whether the charge was a fair and proper one. Accordingly in this case the particulars of demand had been given, and, as he told his lordship in the first instance, he intended to pin the plaintiff closely to those particulars. The jury having those particulars before them would say whether there were not tremendous overcharges even for the work which the plaintiff said he did. He had no right to wander one hair's breadth from them; having given the items of his charge, it was not competent for him to say that the jury should not condescend to particulars, but should keep in view the tremendous exertions he had made. As men of business, the jury must look at those particulars, and deal with them. He would call before them engineers who would state that these particulars contained many overcharges which ought not to be allowed, and that the plaintiff having received the fifty guineas paid into court, *plus* the guinea paid him on his subpœna, was amply remunerated for his services. The particulars divided themselves into two parts. The first related to that which was done anterior to the plaintiff being subpœnaed as a witness, and giving his triumphant evidence which blew all the other witnesses out of court. The jury had heard the plaintiff's own statement, and he (Mr. Chambers) prayed them to consider whether the plaintiff did not blow his own trumpet in a most extraordinary manner. He was introduced in the first instance by the learned counsel (Mr. O'Malley) as a great parliamentary gas engineer, and he himself spoke of being retained upon thirteen committees. The word "retain" was evidently an improper word; it implied that he was an advocate, and the parties employing him might just as well "retain" Mr. O'Malley or himself to give evidence and conduct their case. But the plaintiff said moreover: "I despise the idea of being an engineer to a gas company. I am what may be called an agitator"—that is, as Mr. O'Malley put it, "I tell the world that the gas they have is too dear and too impure, and that if they support my new companies they will be certain to get it cheaper and better, as the experiments which have been tried proved." The learned judge, however, told the plaintiff not to be in a hurry to swear that, as it was not always the fact. This was the sort of introduction with which the plaintiff came into court. And what were the facts of the case? Mr. Dethick was a contractor making a sewer which passed through a part of Greenwich, and during the progress of the works there was an explosion by reason of the gas escaping from one of the Phœnix Company's pipes. The company alleged that the fault was Mr. Dethick's, and that gentleman, no doubt attracted by the great fame of the plaintiff, sent Mr. Porter to him with a request that he would go to Greenwich and look at the pipe, to see whether the blame really was his. He (Mr. Chambers) was desirous to show to the jury that it did not require an eminent engineer, who had studied the subject all his life, to ascertain the fact, but that an engineer's pupil might have gone down to Greenwich and made as good a report upon it as Mr. Hedley did. It appeared, however, that on the 17th of February Mr. Hedley "attended a consultation" with Mr. Porter (he used all the terms of a barrister). After that he went to Greenwich, and then wrote the report which had been read, and for which he charged fifteen guineas. He (Mr. Chambers) would say at once that for the services so rendered fifteen guineas was an overcharge, and those who had condescended to look at the particulars would say so too, even though it occupied an hour and a half or two hours of the time of this gentleman who had so many parliamentary duties to perform. There was nothing wonderful in what he discovered, and for looking at one pipe at Greenwich (the other was covered up, and he admitted in his report that he did not see it) fifteen guineas was certainly too much. Nothing was done from that time till the month of June, the plaintiff, he supposed, being occupied with his thirteen committees, although he would have the jury believe that in the intervening time (although he had not charged for it) he had been devoting his attention to this important matter. In truth, it was all lost sight of until the 21st of June, when he "attended a consultation with Mr. A. Lindo," for which he charged two guineas. Mr. Lindo would be called, and would state what actually occurred at that interview, and he (Mr. Chambers) was quite at a loss to understand why, when a solicitor calls upon a civil engineer, the latter should make a charge of two guineas. On the 22nd, there was another consultation with Mr. A. Lindo, giving instructions for plans and sections. Those plans had been actually prepared by Mr. Porter, the foreman of Mr. Dethick, showing the position of the pipes in the trench, and Mr. Lindo would tell the jury that he took these plans to Mr. Hedley, and asked him to copy them, so that they might be brought into court to assist the witnesses in giving their evidence. On the plaintiff's own acknowledgment, all he did was to make some little alteration in them, although in his

demand he charged five guineas for taking instructions, and ten guineas for the plans that he prepared, and which were simply copies, with a little alteration, of those which Porter had prepared. Then came an item on the 25th of June, "Consultation with Mr. A. Lindo, correcting draft of evidence." Now had a civil engineer a right to do this, when an attorney says: "I gather from your report that this is the nature of the evidence you are prepared to give; will you read over your proof, and if you see anything inaccurate, just correct it"? Did the jury think it was just and proper not only to charge for the "consultation" on that occasion two guineas, but also for correcting the draft of his evidence five guineas? Supposing any one of them was a client, would he think his attorney justified in paying a witness in this way for correcting his own evidence. Then, again, there was "alterations of plans, and attending Mr. Lindo therewith." It was his own fault that an alteration was required, for his clerk had done something wrong, and yet for the necessary correction he charged a guinea. Then came a charge of five guineas for attending at the Phœnix Company's office to inspect a pipe—of the fairness of which charge it would be the duty of the jury to consider; and to this was added a further charge of two guineas for making a model of the injured pipe, respecting which it was not necessary to say anything. All these were charges anterior to the plaintiff being subpœnaed to give evidence at the trial. With regard to the other items, they all depended upon one fixed principle—viz., that a witness had no right to sell his evidence for an extra reward, by reason of his being a scientific man. If he did, and the other party agreed to give it him, and he could prove there was a positive contract, it might make some way, although he (Mr. Chambers) doubted whether the law would allow him to do it. But in this case what evidence was there that the attorney entered into any contract that the plaintiff should be paid for conducting the case as a civil engineer, or that he should receive one farthing more than he was entitled to—viz., a guinea upon his subpœna for attending at Guildhall to give his evidence. The first item of charge was a very unfair one, and one which he, as a great engineer, full of employment, was not justified in making. He charged five guineas for attending at Guildhall on the 30th of June, although on the previous day he was informed by Mr. Lindo's clerk that the case had been postponed, and that he would not be wanted. His excuse was that he had not time to make other arrangements. Why then did he not put down "charge for loss of time by reason of not being able to do anything else that day." The fact was he blew hot and cold at the same time, for if he was a man of such enormous business he could easily have turned his attention to something else, whereas by making the charge it was as much as to say, "I had nothing else to do, and am not the great man that I am represented to be." The two next items of £7. 17s. 6d. each were for attending the court, conducting the case, and giving evidence. On this point it was only necessary to say that by the rule laid down by the courts he was only entitled to one guinea, and if these items were struck off it would reduce his claim below the £52. 10s. 0d. paid into court, plus the guinea which the plaintiff received upon his subpœna. These were all the observations he would make as far as the plaintiff's bill was concerned, and it would be for the jury, as men of business, to say what view they took of the case, and whether the money paid into court was not more than sufficient to satisfy the demands of this gentleman. Why, good gracious—conceive for a moment that Dr. Letheby and the other eighteen witnesses on each side had considered themselves entitled to be paid in this way. In a *nisi prius* case of this nature, he (Mr. Chambers) imagined that Dr. Letheby would consider fifty guineas for three days attendance, and what he had done before, a very handsome douceur, and he had no doubt the jury would think so too, more especially when they came to look at the evidence given by the plaintiff and his witnesses. Those gentlemen would not condescend to look at the particulars, but rather regarded the result of the action—viz., that Mr. Dethick having a good cause of defence succeeded in convincing the jury. It was in effect to say, "Now we will make him pay the witness as though he had sold himself to give his testimony so as to win the verdict, and is therefore entitled to more money for that." But the jury had not to look at the result of the trial; all they had to consider was what the plaintiff was entitled to for his services, and, supposing no trial had ever taken place, or supposing when the trial took place a juryman had been withdrawn and the parties had settled the action between themselves, whether the fifty guineas paid into court and the one guinea paid him upon his subpœna, was not more than sufficient to satisfy his demand.

Mr. *A. Lindo*, examined by Mr. ARCHIBALD.

I am the attorney for the defendant in this case, and was also his attorney in the action brought against him by the Phœnix Gas Company. On the 21st of last June I called upon the plaintiff at his office in the Poultry. I told him that the gas company had commenced an action against Mr. Dethick to recover damages for the injury sustained by them in consequence of the explosion at the corner of Coltman Street and Thames Street, Greenwich, and I said as he had made a report upon the cause of that explosion we should require him to give evidence at the trial. At that time I handed him the plan and section of the road produced, which was prepared by Mr. Porter, and instructed him to copy it. I was with him about half an hour on that occasion. On the 22nd I saw him again at his office, and gave him then a memorandum showing the strata of the soil, which was to be shown on the sectional plan. I was with him about a quarter of an hour. I saw him again on the 23rd. I took with me a draft of his evidence, which I had prepared to ascertain if it were correct, and he asked me to leave it with him, which I did. He told me then that he had ordered a model of the main and pipe to be prepared, and I said that was quite right. I was with him at most a quarter of an hour. On the 24th he called at my office with the draft of his evidence, and brought the plans with him. My clerk saw him on the following Monday morning. I took the plans back to his office, but he was absent, and I left them with his boy, instructing him to have one word erased. At the joint of one of the pipes he had written "defective," which was wrong, and the taking out of that word was the only correction made. On the 27th I accompanied him to the Phœnix Gas-Works, Bankside, to inspect the fractured main. We were engaged there about a quarter of an hour or twenty minutes. The trial came on on the 3rd of July. It had been originally fixed for the 30th of June. On the morning of the 29th of June I instructed my clerk to inform the plaintiff that he need not attend the next day. The cause was in the list on the 1st of July, but did not come on. I had made an arrangement with the plaintiff that he was to be sent for when wanted. Notwithstanding that, he came into Guildhall between twelve and one o'clock that day. At three o'clock an announcement was made that the case would not come on. He was there throughout the day on the 3rd, and after the court rose he attended, at his own request, a consultation at Mr. James's chambers. Mr. Payne was also there. I think the plaintiff left shortly after six o'clock, when the consultation was over. On the 4th he attended the court, and gave his evidence. A number of other witnesses were called—in all 16. We had other engineering evidence besides his. There was Mr. Grant, an engineer in the service of the Metropolitan Board; and Mr. Peckham, of New Cross. Dr Letheby was also examined as to the cause of the accident.

Mr. ARCHIBALD: Now, do you consider it was the plaintiff's evidence which got the verdict in any way?

Witness: I certainly do not.

Examination continued: I delivered a subpœna to the plaintiff, and paid him a guinea with it. After the verdict and judgment the costs were taxed, and the amount allocated for the plaintiff by the Master was three guineas, which is according to the scale.

Baron MARTIN: You were asked about the plans and sections. What alteration was made in them?

Witness: They were merely copies with a little more finishing off as an engineer would do them.

Mr. ARCHIBALD: Were they in other respects copies of those you had left?

Witness: Quite so.

Cross-examined by Mr. O'MALLEY: I am the solicitor conducting this case. When I instructed Mr. Hedley I expected he would want something more as remuneration than the allowance of the taxing-master for his attendance as a witness, but I said nothing to him about it. I know from my own experience that witnesses do require more than the scale allowed, and are usually paid more. Skilled witnesses are paid according to their eminence. I do not remember Mr. Hedley suggesting to me that we should call Mr. Bramwell as a witness, and my saying that he would not come under forty guineas. To the best of my belief he did not do so. I do not recollect his suggesting Mr. Cowper. I will swear that I did not ask how much he would require, and that Mr. Hedley said ten guineas a day. I did not say in reply that I should like to have Mr. Bramwell, but that he would not come under forty guineas. To the best of my recollection these names were not mentioned. My firm has been engaged in the conduct of patent cases, and I am aware that some persons are paid forty and fifty guineas for their services; and that medical witnesses in accident cases charge very much more than the Master allows. It never came within my knowledge that they have had as much as twenty, thirty, or forty guineas. I swear that the plan prepared by Mr. Hedley is only a more finished copy of the other. [Plans handed to witness, who examined same.] The arrangement of the pipes is, I believe, precisely the same in both. I do not observe any difference, with the exception that in one the service-pipe, which goes into the house, is not placed close up to the point in the main. The strata of the soil, which is shown partially in our plan, is shown more clearly in the plaintiff's, which is according to the memorandum I gave him. It is coloured differently to show which was clay and which gravel. I am not an engineer, nor am I more competent to instruct counsel on engineering subjects than solicitors generally are. Mr. Peckham, who was called at the trial, is, I believe, a gas engineer. He was introduced to me at the time as such, and as having seen the pipe immediately after the explosion. Mr. Grant was the engineer of the Board of Works who had charge of the contract under which Mr. Dethick was working at the time, and he was called to give evidence as to the way in which the work was carried on, and also as to the cause of the explosion.

Mr. O'MALLEY: Now I ask you, Mr. Lindo, will you venture to swear that Mr. Hedley was not the chief engineering witness on the part of the defendant?

Witness: His evidence was certainly corroboratory of the other evidence which we had obtained. Dr. Letheby was the chemical witness. There was very little engineering evidence required.

Cross-examination continued: I do not recollect how long Mr. Hedley was in the box—certainly not an hour.

Mr. O'MALLEY: Do you mean to swear that he was not an hour under cross-examination?

Witness: I do.

Mr. O'MALLEY: How long was Dr. Letheby in the box?

Witness: About a quarter of an hour.

Mr. O'MALLEY: Was he ten minutes in the box?

Witness: Yes, I believe so.

Mr. O'MALLEY: Will you swear it?

Witness: To the best of my recollection he was.

Mr. O'MALLEY: Now, I ask you again, will you swear that Mr. Hedley was not the principal engineering witness?

Witness: He was one of the most important witnesses, because he had made a report upon the explosion at the time it occurred.

Mr. O'MALLEY: And had made himself perfectly master of the subject?

Witness: I think he knew little or nothing more than the other engineers did.

Mr. O'MALLEY: Have you not yourself said that Mr. Hedley won that case for you?

Witness: Never, for the simple reason that I never thought it.

Mr. O'MALLEY: Who did you think won it?

Witness: I think the evidence altogether on the part of the defence won the case.

Cross-examination continued: Before the case was in the paper I told Mr. Hedley we would send to his office for him when he was wanted. I believe it was on the 27th when I told him it was coming on. The first time I saw him in court on the 1st of July, it was between twelve and one o'clock. I saw Mr. Grant about the case some three weeks before the trial. The major part of the evidence I got from Mr. Dethick's own men, particularly his foreman. There was no engineering question in the case. The question was whether the fracture in the pipe was an old one. We did not start upon a wrong theory as to how the gas escaped. I am not aware that Mr. Porter ever took a different view of it to Mr. Hedley. Mr. Hawksley, who is a very eminent engineer, was examined on the other side. I do not think Mr. Barlow was. Other engineers were, but I do not recollect their names. My first interview with Mr. Hedley lasted an hour, and on the second occasion I was not with him more than a quarter of an hour.

Re-examined by Mr. CHAMBERS: Mr. Hawksley's theory at the trial was that the ground underneath the main had been lowered and sunk through the operation of our works, and that the pressure on the service-pipe which crossed our cutting had drawn the service-pipe out of the main. I think it was shown that that theory was fallacious. We had witnesses to the fact of what had been done down in the excavation and what earth there was above the pipe, and their evidence proved that it could not have happened in that way. The memorandum I gave Mr. Hedley about the strata I obtained from Mr. Porter, and his plan is coloured according to that information.

Mr. CHAMBERS: Now, will you be kind enough to hand me the finished section of the plaintiff. [Handed up.] Now, I see in the finished plan of the plaintiff there is a colouring of the pavement, and there is written the word "pavement."

Witness: Yes.

Mr. CHAMBERS: Then underneath there is gravel, and it is coloured brown?

Witness: Yes.

Mr. CHAMBERS: Then underneath that there is also another kind of earth?

Witness: Yes.

Mr CHAMBERS: Now, is all this coloured according to the memorandum you gave of the different strata?

Witness: Yes.

Mr. CHAMBERS: The width and place of the different strata?

Witness: Yes. That is all the difference between the two sections. In Mr. Porter's plan the service-pipe does not go quite into the main; in the plaintiff's it does. That is all the difference. There was no alteration made in the ground-plan; it is simply a copy, but the colouring is rather higher. The word "defective" was struck out at the joint with the meter. It ought not to have been there, and Mr. Hedley charged a guinea for striking it out.

Baron MARTIN: You directed that it should be removed?

Witness: Yes.

Baron MARTIN: And that is the alteration?

Witness: Yes.

By Mr. O'MALLEY: The case very much turned upon the nature of the breach and its appearance as affected by the atmosphere in determining whether it was an old fracture.

By Mr. CHAMBERS: And upon that point Dr. Letheby and other witnesses were examined, who had seen and examined the pipe soon after the explosion.

Mr. *James Porter*, examined by Mr. CHAMBERS.

I was foreman to Mr. Dethick at the time of the explosion. I requested the plaintiff to visit the place, and he did so. The mains and other pipes had been then uncovered by the gas company. On the night of the explosion I had myself made the discovery that the main had been broken near the junction and the service-pipe, and I immediately told the manager of the gas-works who was there at the time what opinion I had formed as to the cause of the escape. I told the plaintiff when he came, and pointed out where I thought was an old fracture. Plaintiff was there about half an hour, and when he visited the works of the gas company on the 27th June, he was there under half an hour. There was a model of the pipe used at the trial; it is in court now. [The model was produced.] I should think that 20s. was quite enough to pay for it.

Cross-examined by Mr. O'MALLEY: I did not at first look upon the joint which I have marked "bad" on the section, as the source of the explosion; it might have contributed to it as it was defective.

Some further questions were put to the witness with the view apparently of showing that he was originally mistaken in his theory as to the cause of the explosion; whereupon

The FOREMAN of the JURY said, the jury are of opinion that in the present case we have nothing to do with that matter.

Baron MARTIN: The question you have to decide is whether you believe £52. 10s. is a sufficient payment for the services of the plaintiff.

The FOREMAN: That is all, we think.

Baron MARTIN: That is all I shall leave to you.

The FOREMAN: And on that we are all agreed now.

Mr. D. W. Young, examined by Mr. ARCHIBALD.

I am a civil engineer in Great Queen Street, and have been employed by the Metropolitan Board of Works and other public bodies. I have been in practice as an engineer for 20 years. I am acquainted with the rate of charges made by engineers. I have looked at the particulars of the plaintiff's claim and have heard his evidence to day and the evidence of Mr. Lindo Looking at the nature of the work done by the plaintiff, I think fifty guineas is an ample remuneration, which sum includes five guineas for his attendance in court. In my practice I charge two guineas for a consultation of about an hour; for a short consultation I should charge half that sum.

Cross-examined by Mr. O'MALLEY: I practise as an engineer and surveyor. One part of my business is that of taking out quantities for architects. I am engaged at the present time for the London Gas Company as their surveyor. I am not what is called a consulting engineer. I have taken out a great many quantities upon which Mr. Dethick has acted.

Re-examined by Mr. CHAMBERS: My business enables me to know what are the ordinary charges of engineers, and upon that knowledge I have given my opinion to day.

Mr. *Z. D. Berry*, examined by Mr. CHAMBERS.

I am a consulting gas engineer, and have been so for the last 27 years. I am employed by the London and other gas companies very largely, which gives me an opportunity of knowing what are the ordinary charges made by engineers. I have looked at the particulars of the plaintiff's demand.

Mr. CHAMBERS: Now, do you know what his position is? Is he what is called of the highest class?

Witness: That is rather a delicate question.

Mr. CHAMBERS: Well, I will not press you upon that. Looking at the charges he has made, and the work he has done, do you think fifty guineas is an adequate sum for it?

Witness: I should think if he had had thirty guineas he would have been very handsomely, very liberally paid.

Examination continued: The minimum charge for a consultation is a guinea. I have seen the plans. The scratching out of the word "defective," for which he has charged a guinea, is not a matter that I should have charged anything for.

Cross-examined by Mr. O'MALLEY: I carry on my business at the Albion Works, Regent Street. I am the owner of those works. I do not carry on an ironmonger's shop. I have an ironmonger's shop in Pimlico which my wife carries on. I am at present getting out plans for very large works in Italy Mr Calasotti is the engineer associated with me. I am a consulting engineer, the same as Mr Hedley. I have been consulted repeatedly by almost every company, and have been examined before parliamentary committees on engineering questions. I was engaged in the case of the Imperial Company in 1851. The latest time was two or three years ago, on the districting question, when I saw your client present. That was the time the vestries came forward against the gas companies. I was not examined as a vestry man.

Re-examined by Mr. CHAMBERS: I was in attendance to be examined at the inquiry respecting the recent explosion at Nine Elms, but the jury were satisfied with the evidence of Dr. Letheby.

Mr. *Edward Mote*, examined by Mr. ARCHIBALD.

I am clerk to Messrs. Lindo and Sons, the defendant's attorneys. On the 29th of June I was instructed by Mr. A. Lindo to inform the plaintiff that his attendance would not be required next day.

The FOREMAN: The jury are of opinion that they have heard sufficient evidence for the defendant. We consider that the fifty-two guineas paid into court is quite sufficient.

Mr. O'MALLEY: But the jury have not heard me yet.

Examination continued: It was between eleven and twelve in the morning of the 29th of June that I saw the plaintiff, and told him that the trial had been postponed from the 30th of June to the 1st of July. He said he had made his arrangements for the day.

Mr. CHAMBERS said this was the case for the defence, and, after the expression of opinion which had been given by the jury, he did not think it necessary to trouble them with any observations beyond submitting that, on the testimony of the witnesses just called, it was clear that the plaintiff was not entitled to a larger amount than had been paid into court.

Mr. O'MALLEY said the jury might well conceive that it was no pleasant task for a counsel to address them after they had prematurely expressed their opinion upon the subject. The law and the judicial institutions of the country, however, had provided that after hostile evidence had been given against a party, those who sat in judgment upon him should hear the observations of his counsel upon that evidence before pronouncing a final decision. In rising, as he now did, to address the jury upon the issue before them, notwithstanding the intimation they had made, it was because he felt a strong sense of duty in the matter, and because he was desirous that the responsibility of the verdict, at all events, should rest upon the heads of those who gave it, and that it should not be said the plaintiff's counsel had omitted any portion of that duty which the law imposed upon him And in fulfilling his duty he was bound to say that in his humble opinion a more unjust or ungracious defence had never before been set up to a case in a court of justice. Mr. Lindo, the defendant's solicitor, had come forward so perfectly ignorant of everything in connexion with the subject in dispute, that he did not even know the names of the eminent engineers who were called upon the part of the Phœnix Gas Company to oppose the defendant on the trial in July. That a person like this could have done anything towards getting up the case of Mr. Dethick, beyond simply writing down what he learnt from Mr. Hedley in the course of his interviews with him, was perfectly inconceivable. Mr. Lindo's ignorance of the subject was such that he could not have taken one step in the matter without the continued instructions and information which he received from Mr. Hedley. The first step taken, before any action was brought, was to go and consult Mr. Hedley, and get a report from him; and from that time downwards to the period when the trial was brought to a successful issue, no one who had heard this case could doubt that the instructing mind throughout the whole of the defence was Mr Hedley's. Now his (Mr. O'Malley's) learned friend on the other side had certainly shown himself to be not unworthy of another office in the profession to which he had been so long an honour, proving that great men can sometimes do litttle things; for, notwithstanding Mr. Chambers's great achievements in court, he had in this instance shown that he could fill most successfully the office of an attorney's clerk taxing a bill of costs before the Master. He had gone into the charges in the particulars of the plaintiff's demand with extraordinary minuteness, which of itself illustrated the spirit with which the whole of the case had been conducted; because, while Mr. Dethick owed everything in the success of his cause—his escape from a liability amounting to thousands of pounds—to the energy, skill, and scientific knowledge of Mr. Hedley, his counsel now came into court avowedly to say, we object to his particulars of demand, and although he may have done other work we shall pin him to these particulars. And then his learned friend talked of some of those charges in a way which indicated great obliviousness of his own position, and that of every barrister in court. He (Mr. O'Malley) would like to see what Mr. Chambers's fees would be on many of the occasions referred to, and he would ask whether his learned friend would be content to attend in court from ten o'clock till four for even ten guineas a day. He should like to know whether his friend would go down to Greenwich—great as the attractions of that place might be to him—and make a report for fifteen guineas. No doubt it might be said, without disparagement of the many learned gentlemen who appeared in this court and elsewhere, that they would be very well paid at a much smaller figure, and that Mr. Chambers was entitled to a much larger fee because he was a great man.

Baron MARTIN: Barristers are not paid upon that principle at all, but upon quite a different principle.

Mr. O'MALLEY said he was only going to show that those who had gone through a most laborious process of education, and had attained to great eminence and success, were entitled to a higher rate of remuneration for their services. The principle upon which engineers were paid was that they were not day labourers, they were professional men—men of as great knowledge and information, and often of far greater ability than many barristers who appeared in Westminster Hall. He remembered hearing the Chief Justice of the Common Pleas say that when he saw such men before him, he was almost inclined to bow down in adoration of the genius they displayed. And it would certainly be unjust to the profession to which he belonged, and to the profession of those great men, if they endeavoured to depreciate their services, or to place them on a lower platform with respect to remuneration than that to which members of the bar were entitled. In reference to the present case, it was clear that Mr. Dethick employed Mr. Hedley, and that he relied upon Mr. Hedley. He was the chief witness examined for Mr. Dethick, and was put forward by his counsel as a man of eminence, and one well calculated to lead the mind of the jury. And yet now he instructed his solicitor to depreciate the plaintiff's character and try to make out that he was a pretender when he spoke of himself as a man of experience and ability. His learned friend's cross-examination was almost entirely directed to that object. He would say nothing of his learned friend's allusion to "parliamentary counsel;" he did not know what was meant by referring to it; at all events he believed that as far as parliamentary practice was concerned, Mr. Chambers had had much more experience than himself. He now came to the attempt that had been made—the poor, paltry attempt—to stop this case by raising a question of law, as if Mr. Dethick, or Mr. Lindo, or any one living had the notion that Mr. Hedley was likely to go into court and to give his time and attention to the cause, and then only to be paid for his service upon the scale of allowance by the taxing-master. It was a poor, paltry attempt on the part of his learned friend, acting on the instructions he had received, and it was an unworthy attempt on the part of him who had now in his pocket £5000 or £6000, which but for Mr. Hedley's exertions he would have been liable to pay. He (Mr. O'Malley) would ask the jury to look at the evidence given in this case. First of all, there had been called on the part of the plaintiff not only himself, but several engineers of the greatest eminence—known in the metropolis—known everywhere as civil engineers of great ability. No man could look through the newspapers—no man could walk through the gallery of the House of Commons—without seeing or hearing their names repeated; and these gentlemen had all given their

evidence as to the amount of the demand made by the plaintiff, and said that they believed his charges were fair and reasonable. And who was called on the other side to contradict that evidence? First of all, he would say there was not one engineer pure and simple called for the defence. The last witness called, indeed, talked of himself as such; and he (Mr. O'Malley) saw his learned friend gather up into his Protean face a look of great significance when he put to him the question whether he was a consulting engineer. But when they came to inquire it turned out that he was not a consulting engineer to any company, and the only case he could give in which he was so engaged was that he had appeared in 1851 against the Imperial Gas Company, and in 1860 in the metropolitan gas inquiry, in which almost every engineer and almost every vestryman in London took part. As the jury no doubt knew, that was a bill brought in not by the companies, but by the vestries and district boards of the metropolis, for the purpose of compelling the gas companies to submit to certain restrictions, and apportioning to them certain districts, so as to avoid the continual breaking up of the roads. At that time he (Mr. O'Malley) did not know whether the witness was a vestryman, but it appeared that he was called in to give evidence upon the question, and that circumstance seemed to have made a deep impression upon his mind. But it did not appear, nor was there the slightest ground for supposing, that this gentleman ever held a consultation in his life." He said, "I should charge a guinea for a consultation. No doubt he would, and be very glad to get it; but the jury must not weigh his evidence against the evidence of those who had obtained eminence in their profession. Then they had Mr. Young, who certainly appeared under false colours, for one would suppose from his evidence that he was an engineer in the proper sense of the term. An engineer was a man who planned works, and was consulted upon them. Mr. Young's trade or profession—a very useful one—was that of taking out quantities when engineers and others had prepared their plans. He worked out those details which an acute persevering man could best do, and which were necessary to enable contractors to make tenders for the works to be done. Another witness was Mr. Porter, the foreman of the defendant, who did not appear to have anything to do with the work of an engineer. And it was upon the evidence of these gentlemen that the jury were asked to say that the plaintiff had overcharged for his services. His learned friend had laid down a great many general principles, and amongst the rest, he spoke with horror of an engineer instructing counsel and afterwards getting into the witness-box to give evidence. He (Mr. O'Malley) wondered how many hundreds of times his learned friend had been accessary to that course. How often it was done in patent cases every one who practised in these courts very well knew. His learned friend must have known that in a number of cases the attorney who conducted it went into the witness-box, and by his own evidence perhaps established a will prepared in his own office, the validity of which was impugned on the ground of incompetence on the part of the testator. In the present instance Mr. Lindo, who conducted the case for the defence, was put in the witness-box, and he (Mr. O'Malley) thought that his evidence was as extraordinary as it possibly could be. But first of all, with reference to Porter. Porter said that he himself discovered the cause of the escape of gas immediately. If he did, why did he go to Mr. Hedley? It was curious; but if the jury looked at the section which he prepared, it seemed to indicate most clearly that he did not discover it. For in the first place, the explosion having taken place in the house, his section did not show any connexion between the house and the spot where it was proved the escape took place. It was as clearly shown too that he had adopted a different theory with respect to this accident—a theory which would not hold water—and that it was Mr. Hedley's correct view of the subject which procured a verdict for the defendant. Then Mr. Lindo said, "I do not think that Mr. Hedley's evidence contributed much to the verdict." Why, knowing the extent of Mr. Lindo's information, he (Mr. O'Malley) would as soon think of accepting his opinion upon the subject as he would think of accepting the opinion of his learned friend upon the manœuvres in some great battle at sea, if he should say that the admiral's tactics were bad though he won the victory. Mr. Lindo attributed the success to the testimony of the labouring men. But could they tell whether the fracture was an old or new one? It turned out that it required a minute examination of the state of the metal surrounding the fracture—a subject evidently within the cognizance of an engineer, but upon which neither Mr. Porter nor the labouring men could throw the smallest light whatever. Addressing a body of able and enlightened gentlemen like the jury now in the box, he would ask them, whatever their previous conception of the case might be to look at it in the way in which he had now put it. Here was a man of eminence engaged upon the matter during the whole time, giving to it his great talents, instructing counsel in court, instructing the solicitors out of court, and positively transferring from his own mind to paper, from which it came out in a court of justice, the theory by which Mr. Dethick was successful. He asked them to look at these facts, and to compare the evidence given for the plaintiff with the evidence given for the defence as to whether the charges were fair and reasonable, and then to ask themselves whether they were qualified by their own experience, by their knowledge of the nature of the work done by Mr. Hedley, and of the charges usually made for services of this description, to say, upon their oaths, "No" to the evidence of such men as had been called by the plaintiff before them. If they were not, could they for one moment rely upon the testimony of such men as the defendant had produced, who had but little knowledge of this part of the profession, and were not qualified to judge what the charges for such services should be? That was the case which he put to the jury. It was not the question of the time, whether two or three hours, which Mr. Hedley might have given on any particular occasion, but the amount of skill, experience, and reputation which he had brought to bear upon the subject, and which so eminently contributed to the success of the defendant. He thought the jury would feel that it was an unworthy thing for the defendant to come into court, and respecting a matter in which to himself such great issues were at stake, to resist payment of the 25 guineas beyond the amount paid into court. He left the case in their hands; he had brought the facts before them, and had discharged his responsibility in the matter; the responsibility of the verdict now rested with the jury.

Baron MARTIN: Gentlemen of the jury, do you retain the same opinion you expressed some time ago, or do you wish me to sum up?

The FOREMAN: We are all of the same opinion.

Baron MARTIN: You think fifty guineas sufficient for the labour you have heard described?

The FOREMAN: We do.

Mr. ARCHIBALD: Your lordship will certify for a special jury?

Baron MARTIN: Whose jury is it?

Mr. ARCHIBALD: The defendant's.

Baron MARTIN: Yes.

The verdict was accordingly entered for the defendant, with costs of special jury.

Miscellaneous News.

IMPERIAL CONTINENTAL GAS ASSOCIATION.

The Half-Yearly Ordinary Meeting of the Proprietors of this Company was held on Wednesday, Nov. 29, at the London Tavern, Bishopsgate Street—BENJAMIN ATTWOOD, Esq. (in the absence of the president, Sir Moses Montefiore, through indisposition), in the chair.

Mr. S. J. BROWN (the board clerk), read the notice calling the meeting, and the corporate seal of the company having been affixed to the register of proprietors.

Mr. W. P. PEARCE (of the firm of Pearce, Phillips, and Pearce, the solicitors to the association) read the report, of which the following is an abstract:—

The report stated that the operations of the association generally, during the past half year, had been good, and been productive of a very satisfactory result. The consumption of gas still continued to increase. The total number of lights had also considerably increased.

The large and growing increase in the consumption was in a great degree attributable to the large and important reductions made in the price charged for gas at the different stations during the last few years, and it might be expected that it would further continue to such an extent as would ultimately compensate for those reductions. At the same time, it must be observed that this increased consumption necessarily called for and absolutely required a very large outlay of money in works and mains to supply it, which outlay could not be avoided, but must go on so long as this growing demand for gas should continue.

The president and directors, while they viewed with much anxiety the question of reductions of price, were always desirous to make all such as could reasonably be asked for by consumers and as were justified by the circumstances, in order to comply as far as possible with the wishes of the inhabitants and authorities of the towns lighted by the association.

At Cologne the negotiations for a new contract with the town were still pending, and during which the president and directors considered it would not be prudent to enter into any discussion upon them.

The extension of the mains from the Frankfort works to the neighbouring town of Bockenheim (in the territory of Hesse Cassel) was proceeding rapidly for the lighting of the latter town, for which a contract had been obtained, as mentioned in the last report.

Some negotiations had been entered into with the municipal authorities of Haarlem with the view to the renewal of the contract for lighting that town, but had not yet been brought to a satisfactory conclusion.

It was stated that the experience yet had of the effect of the new contract for lighting Aix-la-Chapelle was not sufficient to enable the president and directors to judge how far it would be beneficial to the association, or otherwise; but the increased demand for gas there was very large, and if that should continue, it was hoped that it would ultimately prove advantageous.

At all the other stations occupied by the association, it was stated that the large reductions made in the prices for gas in the last few years still continued to occasion increased demand for it, which in all cases was being promptly supplied by the association in a manner that was giving satisfaction to all parties interested therein; and very large extensions of works and mains were being made to produce this increased supply.

The contract for lighting the town of Toulouse was fast drawing to its termination, and there appeared but little prospect of its being again renewed.

The law proceedings which had been carried on by the board of direction, in defence of the rights of the association at Marseilles, having failed, as stated in the last report, all that could now be done was to realize the best price obtainable for the property there.

The president and directors then referred to the accounts, showing the results of the workings of the past half year and to the scheme for a dividend and bonus, prepared in accordance with the provisions of the Act of Parliament.

It was gratifying to the president and directors to be enabled to state that, owing to the favourable circumstances to which allusion was made in the report, the accounts showed the profits for the half year now under consideration to have greatly increased over those for the corresponding half of last year. This large augmentation of profit could not have been achieved but by the unceasing care and attention of the president and directors to reduce, in every possible way, the cost of making the gas, and by the manner in which their endeavours to effect this highly important and vital object had been most efficiently and perseveringly assisted by the active co-operation of the talented and experienced superintendent of the affairs of the association on the Continent, Mr. G. W. Drory, and of the able and intelligent engineers at all the works, who had most willingly and constantly used their best exertions to carry out the views and the wishes of the board.

Looking at all the circumstances, the president and directors considered that an increase of 10s. to the bonus might be made over that paid for the corresponding half of last year. They accordingly recommended that a dividend of £2. 10s. per share and a bonus of £1 per share, making together £3. 10s. per share, should be now declared for the half year ending the 30th of June last, and that the same should be payable, free of income tax, on and after the 15th of December next.

It was a source of great pleasure to the president and directors to be enabled to recommend this large division of profits, at the same time leaving an amount which they trusted would be adequate for the immediate requirements of the association and to meet the reductions in the price of gas before adverted to, as well as to provide for the large extension of the works to which those reductions gave rise, as stated in the present and in former reports.

The necessity was manifest of adopting this course of proceeding to secure the welfare of the association, and to protect it as far as possible against the great competition to which it was subject, more especially in those towns where the contracts were approaching their termination, against the effects and consequences of which there could be no safeguard except by providing ample funds to meet such adverse contingencies as they from time to time occurred.

The line of policy thus indicated had hitherto enabled the association to encounter all such contingencies successfully, and the proprietors might rest assured that the president and directors would still devote their best energies on all occasions to continue that policy, and to adhere firmly to that course of proceeding which had produced the advantageous results now attained.

It would have been highly gratifying to the president and directors if they could have concluded their report with this statement of the satisfactory condition of the affairs of the association, but it now became their painful duty to record the great loss which they had sustained and the association had sustained by the death of one of their highly valued and highly respected colleagues, Matthias Wolverley Attwood, Esq., one of the presidents of the association, who died, after a short illness, in the month of September last. Mr. Wolverley Attwood joined the direction a great many years ago, at a time when the condition of the association was one of extreme adversity, so much so that it was then a serious question, both with the board of direction and with the proprietors, if the association should not be abandoned and wound up, which at that time would have been attended with all but a total loss of the capital; but Mr. Wolverley Attwood took a different view of that matter, and by the great ability, energy, and untiring industry with which he devoted his time to the affairs of the association, he succeeded, after many years of the most anxious labour, in extricating it from its then forlorn and desperate condition; and by a strict adherence to the line of policy which he laid down and recommended to be adopted, it was ultimately raised to the high and prosperous condition at which it had now arrived; and the president and directors could not but regard the loss of his very valuable aid and assistance in the direction to be really a calamity to the association. And they felt and regretted his loss the more, because the kindliness of his nature and his amiable disposition so much endeared him to all with whom he was intimately associated; and he possessed in a high degree that rare quality of being most esteemed by those by whom he best was known.

Mr. JOSEPH SEBAG said, before the business of the meeting was proceeded with he desired to submit a resolution, which he was sure would be received by all with the greatest sympathy and respect, that it would obtain the concurrence of every shareholder present, and the good-will of all who were absent. His motion ran as follows:—"That this meeting seizes the first

opportunity of giving expression to its sincere sorrow at the death of Matthias Wolverley Attwood, Esq., one of the presidents of the association; and further desires to record upon the minutes its appreciation of the eminent services rendered to the association by the deceased, to whose ability, intelligence, and untiring exertions its present very prosperous condition is mainly to be attributed." He felt he might rest satisfied with echoing the very feeling and eloquent terms in which allusion to the death of their excellent friend was made in the report; but it was due to them, and to the memory of the deceased, that a resolution, in the terms he had read, should emanate from the shareholders, showing their appreciation of all that their deceased friend had done. He had known Mr. Wolverley Attwood for many years; he had had his personal acquaintance and confidence, and, he thought he might add, his friendship. He knew how entirely Mr. Attwood's heart and soul were wrapped up in the association with which he had been connected so long. They could all remember the patient and courteous manner in which he listened to the remarks of proprietors who differed from him; and every gentleman who came in contact with him must have felt that Mr. Attwood brought to bear a large amount of intelligence and courtesy, and that the views he held were those which he considered would best promote the interests of the association. It had been said of illustrious men that "the whole earth was their tomb." He would not pretend to apply that in its wide acceptation to Mr. Attwood, but he would say that everywhere shareholders, officers, and servants, felt a thrill of regret when they were made acquainted with his sudden and unexpected death. Though they lamented the death of one, they still felt that every member of the present board brought to bear on their concerns a large amount of ability and intelligence. They were all men of high standing in the City of London, and they could look forward with every degree of confidence and hope.

Mr. GEORGE HOLMER seconded the motion, and said, while he doubted not that every one in the room felt deep regret at the loss which the association had sustained, that loss was more severely felt by the colleages of the late Mr. Attwood. He had known the late president from a child; and as an able, eloquent, and powerful exponent of the principles upon which the board had acted, and brought the association to its present state of prosperity, the loss of Mr. Wolverley Attwood was no doubt very great. But it would be too much to say that that loss was irreparable when he saw the gentlemen who were his successors, because it was impossible to feel that the affairs of the association would deteriorate. He knew that the board were animated by the same principles as Mr. Wolverley Attwood advocated; he had no doubt that they would continue to be acted upon, and so long as that were the case, the greater body of the shareholders would support the directors. It was a relief and an alleviation to find a gentleman bearing the same name as their departed friend filling the chair, and God grant that he might long continue to do so.

Mr. H. R. PRICE, as having taken a somewhat active part in recent meetings, begged to express his sympathy with the board in the loss which they had sustained, and bore testimony to the great courtesy with which the late Mr. Attwood always listened to those who might differ from him. He would say on the part of himself and those who sat around him, that although the late president did not entertain the same views as they did, they always respected his motives in everything that he did.

The resolution passed *nem. dis.*

The CHAIRMAN said he felt called upon as a duty to express his obligations to the shareholders for the very handsome manner in which they had acceded to the resolution which had just been passed. The association was one in which Mr. Wolverley Attwood took an exceedingly great interest from the time at which he came upon the direction. Twenty-six of the best years of his life were entirely devoted to the interests of the company. For those years he never ceased to employ less than from six to eight hours a day in its business; and by his means the company had been extricated from its former condition of difficulty. He (the chairman) was requested by Mr. Wolverley Attwood, when his father died and his own health failed, to become a director of the company, which he consented to do, otherwise he should never have been on the board. Of late years Mr. Wolverley Attwood's health failed him, and he was obliged to withdraw himself a great deal from the active management of the company, until at last he was suddenly cut off. He would again acknowledge the handsome manner in which the motion had been received.

At the request of Mr. Samuel Barber the balance-sheet was read.

Mr. BARBER said he considered £80,000 of surplus profits too large a sum to be added yearly to a fund which had already risen to £800,000.

The CHAIRMAN, in answer to a question put by Mr. Maughan, stated the amount of surplus profits for the three preceding half years, and having inquired of Mr. Barber whether he had any other question to ask upon the accounts,

Mr. BARBER replied in the negative.

The CHAIRMAN then moved the adoption of the report, and said the successful result which the account showed and the report detailed, was, he was sure, sufficient to convince every proprietor that they ought to be gratefully received. At that time he did not feel competent to go very largely into a discussion of the matter, but would be happy to hear any remarks which gentlemen might desire to make.

Mr. MICHAEL complained that every half year so large a sum was taken from the profits and added to a fund which was already, as he contended, too large. He was sorry that they were now further from their object than they were at the last meeting, when their late president, whose death they all so much deplored, held out the hope of a distribution of the unappropriated profits. He, and those who acted with him, did not ask for a money distribution, but to have something which should represent that which was in the company's books. He advocated a principle which had already been acted upon by the board, when they applied for their Act. The contingencies against which the board said they wished to provide had never yet arisen in the past, and he was sure they would not in the future.

Mr. CATER concurred in the views expressed by Mr. Michael. He admitted that the board had acted rightly in the past, but he thought the time had arrived when it was no longer necessary to accumulate. He did not desire to say anything to hamper the directors; he knew the onerous duties which they had to perform; but he should be glad to find them a little more liberal in their dividend.

Mr. MICHAEL said he ought to have mentioned that he hoped the directors would increase the proposed dividend and bonus from £3. 10s. to £4.

The CHAIRMAN replied that the board had no power to do it. That under the 121st section of the Companies Clauses Consolidation Act, the dividend must be paid in accordance with the scheme submitted by the directors.

Mr. CATER said it was impossible to increase the dividend, though they might decrease it, and therefore it would be useless to discuss the question further; but he hoped the directors would consider the opinions which had been expressed. He did not care whether new shares were issued, or the old shares paid up, or a larger dividend paid, but he thought one or the other should be done.

Mr. T. M. STOKES hoped the proprietors would be patient, because he was thoroughly assured that, when the time arrived, the directors would be prepared to give to the shareholders all they could.

Mr. S. A. BECK said, after the recent loss which the board had sustained, he did not come prepared to go into the subject at length; but at the next meeting he should point out several matters of which he disapproved.

Mr. ISAAC SPOONER said the clause of the Act of Parliament to which the chairman had referred was permissive, and not compulsory, and that directors frequently altered the scheme which they laid before their shareholders. He hoped a motion would be made, and the votes of the shareholders taken upon it, to increase the dividend, because he was quite sure that legal means would be found to comply with it.

Mr. BARBER was in favour of a conciliatory policy, and should be satisfied if the board would promise to entertain the question of capitalization at the next meeting. He concurred in the views of Mr. Michael.

Mr. CORRIE hoped the board would not depart from their scheme; otherwise his confidence in the directors would be lessened.

Mr. FRANCIS BASSETT did not consider the proposition to give the shareholders an additional 10s. an unreasonable one, and he was in favour of publishing the report and accounts previous to the meeting. He hoped the directors would reconsider the subject of the undivided profits, and meet the proprietors in a liberal spirit at the next meeting.

Mr. PRICE called attention to the increase which was taking place in the half-yearly profits of the company, and objected to investments in Exchequer Bills and Consols as not being sufficiently remunerative. He did not propose to increase the dividend, but would prefer its being spread over a larger surface, so as to represent the actual capital upon which profit had been made. If that course were followed, they would be more likely beneficially to renew and make fresh concession with the municipalities abroad.

Mr. F. D. GOLDSMID desired it to be distinctly understood that he dissented from the view which appeared to be put forward, that there were different interests affecting directors and proprietors. He had the greatest confidence in the board, who had conducted them to their present state of prosperity, and would rather leave his interests in their hands than in those of what he might term, without desiring to give offence, amateur managers. He hoped the board would always keep a large sum of money to meet every contingency; otherwise, it might happen that, at a time when large additions to works were necessary to secure the renewal of a concession, they might unsuccessfully apply to English capitalists for the necessary funds.

Mr. MAUGHAN proposed that the company should capitalize profits to the extent of £150,000, which he said they had power to do. This would give one new share for every nine old, and, paying dividend at the same rate as at present, would only require £20,000, which he contended they might well appropriate.

The CHAIRMAN said it was unnecessary to reply at any length to the various suggestions which had been made, because they had been so thoroughly answered on former occasions. He wondered that gentlemen should repeat the same statements again and again, especially seeing that they came from some eight or nine gentlemen who held in the aggregate only 286 shares out of 28,000. It could not for a moment be supposed that the views of such a minority could be put in competition with those of the large body of the proprietors. The directors would be at all times in the future, as they had been in the past, ready to do anything which they conceived to be for the interests of the proprietary at large.

The motion for the adoption of the report was then put, and carried, with one dissentient.

The following resolution was carried unanimously:—"That a dividend of £2. 10s. per share, and a bonus of £1 per share, be declared upon the 28,000 shares of the association for the half year ending the 30th of June last, and that the said dividend and bonus be payable, free of income-tax, on and after the 15th of December next."

On the motion of Mr. STOKES, the following resolution was cordially and unanimously carried:—"That the hearty thanks of the shareholders be voted to the chairman and board of directors for their care and patience, and for their able management of the affairs of the association, and for the large dividend that had been declared."

A suitable acknowledgment of the vote by the chairman, on behalf of himself and colleagues, brought the proceedings to a close.

ORIENTAL GAS COMPANY, LIMITED.

The Ordinary General Meeting of the Shareholders of this Company was held at the London Tavern, on Monday, Nov. 27,—W. T. FAWCETT, Esq., in the chair.

The SECRETARY (Mr. Hersee) having read the notice convening the meeting, the following report and statement of accounts were submitted:—

The directors have the pleasure to lay before the shareholders a statement of accounts for the six months ending the 30th of June last, and are able to report that the business of the company continues to progress satisfactorily. During the half year, 195 public lights have been erected, and 603 burners have been added to the private lights, thereby raising the totals to 1458 and 9261 respectively.

About four miles of additional main-pipes have been laid since the last report, and the manager writes: "This quantity would have been much greater but for the early commencement of the rains. I am working on throughout the season, and am in great hopes I shall be able to complete the laying of mains and erection of the first contract for lamps before the end of the cold season."

The directors are happy to report considerable progress in the extensions and alterations at the works referred to in their last report. The erection of the tank and gasholder has been commenced, and will shortly be completed. The new coal-store is finished, and the purifying and engine and boiler houses are ready for the roofs. Under the able superintendence of Mr. Mellor, the works have been maintained in efficiency, and the quantity and quality of the gas kept fully up to the requirements; and the directors have every confidence that, when the several improvements are brought into operation, the results of the manufacturing process will realize all their expectations.

The acquisition of land adjoining the company's works at Narkuldangah has been completed, and possession obtained. The Government has rendered valuable assistance, by taking the land under the Public Works Act, and conveying it to the company with an indisputable title.

There has been a falling off in the receipts for "Coke, tar, fittings, and meters." The diminution applies chiefly to coke and tar, and arises through circumstances beyond the control of the directors. In consequence of the unusually low rates at which freights to India could be obtained, an extensive importation of tar and oven-burnt coke into Calcutta was made, which has overstocked the market, and compelled the manager to submit to a heavy reduction in the prices previously obtained by the company. Although the depression in value is, probably, only temporary, your directors have deemed it advisable to value the stocks at what they would now realize.

The general revenue account shows a balance available for dividend of £6595. 15s. 10d., out of which the directors recommend a dividend for the six months ending the 30th of June last, at the rate of 8 per cent. per annum on the paid-up capital of the company, payable, free of income-tax, on the 12th day of December next.

Balance-Sheet, June 30, 1865.

Dr.				*Cr.*		
To 149,981 shares, of £1 each	£149,981	0	0	By Amount of plant on December 31, 1864	£103,417	17	1
19 „ „ (15s. paid)	14	5	0	Expended during the six months	20,561	18	5
	£149,995	5	0		£123,979	15	6
Calls due July 1, paid in June	5,300	0	0				
Unclaimed dividends	452	8	5	Cost of plant to June 30, 1865	£123,979	15	6
Wear and tear account—				Amount due to the company	11,648	14	3
Balance, 1864	£446	1	6	Value of stocks, viz.:—			
Half year, 1865	468	2	6	Coals	£3,186	12	0
	£914	4	0	Lime and purifying material	364	15	0
Less—repairs and expenses for the six months	365	13	4	Products	1,997	9	0
	548	10	8	Meters	1,092	3	0
Amount due by the company	17,311	4	2	Fittings	13,308	16	10
Balance from general revenue account	6,595	15	10	Pipes	14,237	5	5
				Services	565	9	6
				Horses, conveyances, &c.	485	10	0
				Sundry stores	1,992	8	9
				Office furniture, &c.	421	11	0
					37,652	0	6
				Balance of passage expenses	733	5	6
				Ditto in Calcutta	£1,490	8	8
				Ditto in London	4,698	19	8
					6,189	8	4
	£180,203	4	1		£180,203	4	1

Profit and Loss, or Working Account, for the Six Months ending June 30, 1865.

Dr.				*Cr.*		
To Cost of coal used	£3,263	15	1	By Gas-rental	£10,971	19	7
Ditto of lime used	66	12	11	Coke, tar, fittings, and meters	1,809	17	8
Salaries in India and London	448	11	0		12,781	17	3
Engineers salaries in India	398	10	9	Transfer fees	9	3	6
Directors and auditors	446	0	0				
Wages in India	858	12	11				
Passages of engineers and workmen	146	13	1				
General expenses, including rent, gharry expenses, postages, advertising, printing and stationery, medical attendance, insurance, and petty charges	336	17	4				
Wear and tear account	468	2	6				
Bad debts and allowances	72	11	6				
	6,506	7	1				
Balance	6,284	13	8				
	£12,791	0	9		£12,791	0	9

General Revenue Account, June 30, 1865.

Dr.				*Cr.*		
To Payment of 5½ per cent.—balance of dividend of 8 per cent. to Dec. 31, 1864, declared at the general meeting, May, 1865	£7,906	5	0	By Balance of general revenue account, 1864	£8,638	0	0
Income-tax	243	11	5	Ditto of profit and loss	6,284	13	8
Balance of interest account	177	1	5				
	£8,326	17	10				
Balance	6,595	15	10				
	£14,922	13	8		£14,922	13	8

The CHAIRMAN said he had very few observations to make in moving the adoption of the report. This was the first meeting held under the new regulations. As the shareholders were well aware, the company's manager in Calcutta had informed the directors that the 31st of December, up to which he usually took stock, was an inconvenient period for that purpose, as it occupied the time and attention of the staff which just then were very much required in their ordinary avocations. Having received the assent of the shareholders, the board had agreed to the suggestion of their manager that the accounts should be made up to the 30th of June in each year, and the annual meeting held in November, instead of May. Accordingly they now met for the first time under the new regulations. Instead of giving the shareholders an interim dividend now the accounts had been made up, and the stock taken to the 30th of June last, and the directors proposed to divide the earnings of the half year, and to pay an interim dividend next June, The only point in reference to the affairs of the company which it was necessary to mention was the increase in the number of the public lights, which at the last meeting he informed them would take place. The previous year had been exceptional, for although the contracts were taken, yet from a variety of circumstances, the company had not been able to get up the lamps. He was happy to report that they had erected more than double the number of new public lights during the last half year that they did during the whole of the previous year. They had still a large number to erect, but the work was going on satisfactorily, and he believed that by the end of the next half year they would have more than 2000 in operation, so that considering they began under a contract for 600, he thought the progress of the company in this respect might be considered satisfactory. They were getting on with the erection of the tank and gasholder, which had been necessitated by the increase in the demand for gas. The most recent accounts received were, that the rainy season having terminated, the engineer was able to progress with the work, and that it would be shortly completed. The negotiations for the land, which had been in hand for a long time, had at last been completed, and the company were now in possession of a most valuable property. The Government had rendered the company every assistance, by taking the land under the Public Works Act, and conveying it to the company with an indisputable title. The company were thus enabled to have all their affairs carried on in one place, which would very much facilitate the conduct of their operations. The manufacture of gas showed signs of considerable improvement during the past half year. They began to understand the peculiarities of climate, and other matters of local importance in India; and to show that he was correct in speaking of the improvements effected in this respect, he might mention that they had been able to make the same, or even a larger, amount of gas with a much less quantity of coals. Unfortunately, on the other side of the account they had an item which took from the full value of this advantage—viz., the diminished return for coke and tar, but inasmuch as he believed the benefit would be permanent, and the falling off in the receipts only temporary, he thought there was no room for discouragement in this respect. The diminution of receipts for coke and tar had arisen from the circumstance of the low freights that had prevailed to Calcutta, which were in some instances almost nominal. This had brought into the field a host of competitors, who sent out oven-baked coke, and tar, seeing the price current would make it remunerative to do so. The consequence was, the company had been obliged to sell coke and tar at a depreciated value; and, of course, as men of business, they had written down the stock to the market value. Freights, however, had recently risen, and the directors had reason to believe that no further loss would be sustained under this head, whereas the improvement in the gas-rental was clearly permanent, and even since the report just presented was prepared it had continued to increase. The prevalence of low freights had not been an entirely unfavourable circumstance for the company, as it had enabled them to send out a quantity of pipes for new works, as well as cannel coal for storeage, at a less expense than usual. Upon the whole, it was very satisfactory to the directors to present such a report as they had now done, and to be able to continue the payment of the same rate of dividend as was paid in the previous year. He, therefore, had much pleasure in moving—"That the directors report and statements of accounts be received and adopted by the meeting."

Mr. LEWIS CUBITT seconded the motion.

Dr. BEATTIE inquired the date of the manager's letter from which the quotation in the second paragraph of the report was given. He imagined it must be subsequent to the 30th of June, and therefore did not bear on the half-year's operations under consideration.

The CHAIRMAN observed that it was dated in August.

Dr. BEATTIE said, that being so, there could have been little interruption of the working up to the 30th of June, or subsequently, for the total rainfall at Calcutta for the season had been 17 inches less than usual. He wished to know if the directors considered the company were entitled to the entire services and time of the manager, or whether by his agreement he was at liberty to engage in other affairs. He (Dr. Beattie) believed Mr. Mellor was a very competent gas engineer, but he thought this company's affairs entrusted to him were of such magnitude and importance as to require the whole of the manager's time and attention.

The CHAIRMAN said the engagement which the company had with Mr. Mellor was for the devotion of the whole of his time and attention to the business of the company. But he might state that during the last two or three days he had been waited upon by Mr. Mackintosh, of the firm of Mackintosh, Burn, and Co., with a letter of introduction from Mr. Mellor, in which it was intimated that that firm were about to convert their large contract business into a joint-stock company. He learnt also with astonishment that Mr. Mellor had accepted the office of a director of that company. No explanatton of the circumstances under which he had done so were given, and he (the chairman) had expressed to Mr. Mackintosh his surprise that Mr. Mellor had undertaken such a thing without the assent of the board, who were entitled to the whole of his services. At the same time he must add that as yet no harm could possibly have arisen to this company's interests, as the joint-stock company referred to was only now in course of formation, and there was plenty of time to communicate with Mr. Mellor. Messrs. Mackintosh's firm, in the early days of the Oriental Gas Company, erected some of their works—they were extensiv builders—and inasmuch as building operations were now being carried out upon a large scale in Calcutta, Mr. Mellor might have consented to join the board of the new company for the purpose of advancing the interests of his present employers. The directors had the greatest confidence in Mr. Mellor, and believed that he was thoroughly alive to the promotion of the welfare of this company.

Dr. BEATTIE said he was glad to hear the directors entertained the same opinion as himself. He held in his hand the prospectus of "The East India Building and General Contract Company," issued months ago, the list of directors headed by Mr. Mellor; and certainly the varied important operations thereby contemplated were such as to render it quite unadvisable the gas company's manager should engage in them, if he did his duty to the shareholders; and he trusted the directors would require Mr. Mellor's undivided services. Not only were important extensions of works going on in Calcutta, but the lighting of Howrah was contemplated, although, by-the-by, the report took no notice of this latter. Allusion had been made to the company's land. He wished to know whether it was freehold? If so, he thought credit should have been taken in the accounts for it. He did not speak of the new land required for extensions, but the other.

The CHAIRMAN said the fact was that all the land they originally possessed was given to them by the Government, therefore no item would be found in the accounts for that. But the portion last acquired, and for which they had to pay, did not come into account until after the last half-year's statement was made up.

Dr. BEATTIE said he observed, under the head of "Fittings, pipes, and services," a very large amount was charged. He observed also on the profit and loss account an increase of £200 per annum under the head "directors and auditors;" if this sum was taken by the directors, he must be permitted to say there was nothing in the way of improvement in the state of affairs this half year which could justify the necessity or propriety of such an appropriation of the company's funds.

The CHAIRMAN said, with reference to the item of "fittings," he could only state that the company were the sole gas-fitters in Calcutta, and were obliged to keep a large stock on hand. It would be very mortifying if they had a large consumer desirous of taking gas, and they could not supply him, having to send to Europe for the necessary fittings, and so lose the rental which they now had by keeping a supply. Considering the prospects of the company, he did not think a stock of fittings amounting to £13,308 was very large, as some of the chandeliers were very expensive. There had been occasions when as much as much as 20,000 rupees were expended in the fitting up of one establishment. The company made a profit on their fittings, but that was not their chief aim; they were desirous to sell gas, and in order to convert their gas into rental as quickly as possible, they thought it the best policy to have a good stock of fittings on hand. With regard to the "pipes" the same remark applied; they were obliged to keep a large stock, so as to be ready to execute the orders of the Government promptly. The sum which now appeared in the balance-sheet, £14,237, was unexceptionally large, for this reason, that it included nearly the whole of the mains with which the company were going to light Howrah, the arrangements for which were almost settled. As to the remarks of Dr. Beattie with reference to the directors remuneration, he might remark that a resolution was passed in 1857 by which the directors were voted a sum of £850 per annum for the management of the company's affairs. Two of the directors of the company had died, and the remaining members of the board had refrained for several years from taking the whole amount, but had drawn only £650 per annum. Considering, however, that the £850 had been voted by the proprietors, and that the company were now paying 8 per cent., with the prospect of a larger dividend, the directors felt themselves justified in charging the entire sum.

The motion was then put, and carried unanimously.

The CHAIRMAN moved—"That a dividend at the rate of 4 per cent. for the half year be paid on the capital of the company, free of income-tax, on the 12th of December next."

Mr. CUBITT seconded the motion, which was at once adopted.

On the motion of Mr. ROBARTES, seconded by Mr. TAYLOR, thanks were voted to the directors, and the chairman having briefly acknowledged the same, the proceedings terminated.

METROPOLIS GAS SUPPLY.

CITY OF LONDON COURT OF SEWERS, GUILDHALL—TUESDAY, NOV. 28.

At the Meeting of the Commissioners this day—Deputy DE JERSEY in the chair—

Dr. LETHEBY presented the following report upon the quality of the gas supplied to the City:—

WEEKLY RETURN *of the Quality of the Gas supplied to the City of London, for the week ending Saturday, Nov.* 25:—

Illuminating power (sperm = 120 grains per hour).

	City Company.	Chartered Company.	Gt. Central Company.
Maximum	14·24	14·64	14·08
Minimum	13·50	12·53	12·67
Average	13·87	13·72	13·51
Total number of observations in the week	17	17	17
Ditto ditto when under standard	None.	None.	None.
Amount of sulphur present (grains) per 100 cubic feet.			
Maximum	25·07	24·93	30·28
Minimum	16·44	20·32	21·73
Average	21·49	22·59	25·68
Total number of observations in the week	8	8	8
Ditto ditto when in excess of standard	5	8	8
Sulphuretted hydrogen	None.	None.	None.

Remarks.—The illuminating power of the gas supplied to the City during the week has been constantly above the requirements of the Act of Parliament, the average illuminating power of the Great Central gas having been equal to that of 13·51 standard sperm candles, the City Company's gas to 13·87, and the Chartered to 13·72. But the chemical quality of the gas has been, with three exceptions of the City Company's gas, at all times bad. The average amount of sulphur in the Chartered gas has been 22 6 grains per 100 cubic feet of gas, and of the Great Central 25·7 grains. Besides which, the gas of the Chartered Company has been constantly overcharged with ammonia. Notice of this has been given to the companies again and again, but no improvement has taken place.

Dr. LETHEBY said I submit that this matter now requires further investigation. At the last meeting, I gave notice that I should attend at the testing-house every morning, and accordingly I have been there. I have made eight examinations during the week for sulphur, and on each of the examinations, the Chartered and Great Central Company's gas has been overcharged with that impurity; and in five out of the eight examinations of the City Company's gas, I have found an excess. In addition to that, the Chartered Company's gas been constantly overcharged with ammonia.

The CHAIRMAN: Can you account for there being this much higher amount of impurity than usual? The companies were aware that you were about to make these special tests, and yet the quality of their gas appears to be worse than ordinary.

Dr. LETHEBY: No; they are about the same as during the last few weeks. In fact, the Great Central Company's gas has been constantly overcharged with sulphur for the last twelve months.

The CHAIRMAN: But the amount of sulphur in the City Company's gas is higher than usual?

Dr. LETHEBY: Yes; but I have generally given the average.

The CHAIRMAN: I do not think your former reports have gone so high as that.

Mr. WALTERS: The companies have given notice that they are about to reduce the price of their gas, and they appear to be reducing the quality also.

The CHAIRMAN: You are now prepared to take active steps?

Dr. LETHEBY: I am prepared. Every investigation has been made during the week by myself, and I am prepared to substantiate them.

The CHAIRMAN: Gentlemen, it was arranged some time ago that Dr. Letheby should make these special investigations, with the view to taking proceedings against the companies. Are you of opinion that those proceedings should now be taken?

It was decided by show of hands that the matter should be referred to the solicitor for the purpose.

COURT OF COMMON COUNCIL.

At a Meeting of the Court on Thursday, Dec. 7—the Right Hon. the Lord Mayor in the chair—

Mr. J. F. BONTEMS brought up a report from the special committee appointed to consider the question relating to the supply of gas to the City, and asked that the consideration of the report be taken in closed doors.

Deputy FRY objected to this course. He said this question was one in which the public were deeply interested, and he should therefore oppose any proposition for taking the discussion in private.

Mr. BONTEMS said the committee seeing the powerful interests with which the corporation would have to contend in this matter, had unanimously decided to ask the court to have the report read and considered with closed doors.

Upon a show of hands the motion for excluding the public was declared to be carried, but upon a division it was negatived by a majority of 10.

The TOWN-CLERK then read the report, which stated that the committee having ascertained that it was necessary to fix upon a site for the erection of works previous to giving notice of the intended application to Parliament had, proceeded to advertise for a site in the eastern and north-eastern districts of the metropolis. From several sites which presented themselves they selected one on the banks of the Thames, about six miles from the City, and they proposed to insert a clause in the bill for compulsory powers to take it. After consulting scientific gentlemen, they directed the necessary notices to be given for the introduction of a bill in Parliament to erect works and supply gas to the citizens, and such notices had been given, and the necessary plans had been deposited in accordance with the Standing Orders of Parliament. They found that the cost of erecting the works, inclusive of the purchase of land, would be £425,000. They now asked that the subject should be referred back to them to take such further steps as might be necessary.

Mr. BONTEMS, in moving the adoption of the report, expressed his regret at the decision to which the court had arrived of considering the question in public. The responsibility of that determination must rest with the court and not with the committee. The opinion of the court had been so unmistakeably expressed upon the propriety of the corporation undertaking the supply of gas that the committee had proceeded at once to carry out their wishes. In the first place, it was necessary that a site for the gas-works should be selected, and the plans and drawings prepared; and with this view the necessary advertisements were issued. The committee also took the opinion of three or four eminent gas engineers as to the points necessary to be considered in the selection of a site. Some ten or a dozen sites had been tendered to the committee; each of them was seen and carefully considered, and the one that had been selected was believed to be the best. The plans and drawings had been prepared, the notices had been given, a draft of the bill drawn up, and an estimate had been formed of the cost of the works and bringing the gas into the City. That he believed was the extent of the reference to the committee, and if the court intended them to proceed further with regard to the bill, it would be necessary to give them further instructions. With regard to the estimate, it was thought desirable that it should be for the entire City; but if it should be determined to light only a portion of the City, of course the estimate would be considerably reduced. The chamberlain had informed them that there would be no difficulty in obtaining funds, provided arrangements were made for the payment of the interest on the amount required. After referring to the profits of the Great Central Company, who only lighted one-third of the City, during the last year, he said that if the corporation undertook the lighting of the whole, their total profits would be £39,000 per annum, which would not only be sufficient to meet the interest, but also to form a fund for paying off the principal. If they did not get their Act of Parliament, the money would not be required, and therefore no harm was done in assenting to the adoption of the report. He ridiculed the announcement put forth by the gas companies of a reduction in the price of gas, characterizing it as a sick-bed repentance, which came too late to be of any weight with the corporation. The court had referred the question to the special committee with an unanimity that had scarcely been displayed on any other question of so much importance and magnitude, and he asked them to be equally unanimous in empowering the committee to continue their labours, assuring them that they would devote to the subject the same industry and perseverance that they had hitherto done. The corporation had been attacked with regard to the steps they were taking, and it had been said that their only desire was to shelve the question, and that no more would be heard of it for some months to come. He believed the decision of the court that day would, however, show that the contrary was their intention, and that they were determined, before Parliament, to make the application for a bill as recommended by the committee. If they did not succeed in getting that bill, he felt perfectly certain that the effect of their labours would be to break up the monopoly which had existed so long, and to obtain for the citizens what they ought to have—good gas at a fair price.

Mr. ROWE defended the gas companies, who, he said, had done nothing which they ought not to have done, of which they were ashamed, or of which they had any occasion to repent. He called the attention of the court to the great alteration which had taken place respecting the estimate of the amount that would be required by the corporation in the erection of works and supplying gas. When the question was first introduced, the estimate was not to exceed £250,000 or £300,000; but it had now swelled up to £425,000. There was one part of the report to which he could not help referring, which said that the gas would not lose illuminating power in travelling from the works to the City—a distance of six miles. He challenged that statement, and denied that it was correct. The company with which he was connected—the Great Central—made gas equal to 15 and 16 sperm candles at the works, but it lost one or two candles in illuminating power in its progress through the pipes, and the light supplied equalled from 13½ to 14 sperm candles. He spurned the accusation that the reduction of price promised by the companies was an indication of a sick-bed repentance, and he maintained that all they had done was in conformity with the Act of Parliament. The Legislature had, in its wisdom, said that 10 per cent. was not too much to divide amongst the shareholders, and the court must remember that for several years the Great Central Company only paid 4½ per cent. Parliament gave them power to pay a back dividend, not as some gentlemen supposed for an unlimited time, but for a period of six years only. The company to which he belonged had done this, and now they were prepared to fulfil the other part of their obligation, and reduce the price of gas to the public. The corporation took credit for driving them into the reduction of price, but the fact was that Parliament compelled them to make it. They would reduce the price 6d. per 1000 feet at Christmas next, and they hoped to reduce it another 6d. in the following year. He characterized the present discussion of the gas question as a St. Thomas's day

agitation, and, with reference to the complaints of the impurity of the gas supplied, said his company had taken the advice of the most experienced men of the day upon the subject, and were not to blame if occasionally the gas contained more sulphur than at others.

Deputy BONE, in supporting the motion, said that when the deputation from the Commissioners of Sewers waited upon the gas companies, it was stated most distinctly, not only that the price of gas would not then be reduced, but that they could not hold out any hopes of a reduction. The reduction which they now proposed, it was clear, therefore, was the result of the pressure which had been put upon them in consequence of the steps taken by the citizens and the corporation upon the question.

The motion for the adoption of the report was then put and agreed to unanimously.

METROPOLITAN BOARD OF WORKS.

SOUTHWARK STREET AND THE GAS AND WATER COMPANIES.

At a recent Meeting of this Board the following report from the Streets Committee on the subject of breaking up Southwark Street, for the purpose of laying down gas and water pipes, was presented:—

Your committee have to report that they have proceeded on the resolution of your honourable board, referring it to them to consider the terms on which gas, water, and other companies, might be permitted to occupy and use the subways in the streets and public places in the metropolis. In considering this important subject your committee could not fail to be impressed with the fact, that a very large amount has already been expended by your honourable board in the construction of subways; and they feel that it is a matter for great regret that such expenditure should, up to the present time, have been in vain. With regard to the steps which your committee have deemed it advisable to adopt in this matter, they beg to state that it came to their knowledge that the Southwark and Vauxhall Water Company had it in contemplation to break up Southwark Street, for the purpose of laying their mains therein. It appeared, from the information before your committee, that the company refused to avail themselves of the subway, on the ground that, having in conjunction with the gas companies expended a considerable sum in opposing before Parliament the Subways Bill, it would be inconsistent to do so. Your committee directed the clerk to address a communication to the company, pointing out the desirability of their using the subway, and requesting them to state whether the board could in any way meet their wishes so as to induce them to take that course. Your committee, however, regret to state that their efforts in this repect have proved unavailing, and that the company still decline to use the subway. Your committee have felt it right to bring this matter prominently under the notice of your honourable board, in order that the public may be made aware with whom the responsibility rests: and in doing so, they cannot help expressing their sense of the inconvenience to public traffic, and the injury to the paving which must necessarily ensue from its being broken up, feeling assured that when once the street is interfered with in that respect it can never be restored in its present solid and excellent condition.

At the meeting of the board on the 25th ult., Mr. Collinson brought under the notice of the members the fact that gas and water companies were breaking up the paving of Southwark Street for the purpose of laying down their pipes, and that they were also interfering with the brick side entrances to the subway, which had been constructed at so great an expense to the ratepayers. Accordingly, the chief engineer and solicitor were ordered to report upon what had been done.

On Friday, Dec. 1, in pursuance of that resolution, the chief engineer reported as follows:—

Engineer's Office, Nov. 30, 1865.

Southwark Street.

With reference to the statement made at the meeting of this board on Friday last, that certain companies, in laying their pipes in Southwark Street, had interfered with the brickwork of some of the side entrances to the subway, I beg to report that I have caused an inquiry to be made into the matter, with the following results:—Messrs. Aird, the contractors, have laid their iron pipes in the trench eight feet wide, the nearest edge of it being about three feet from the kerb. Two of these pipes—namely, a 7-inch main and a 4-inch service—have been laid about a foot apart, from High Street to a point west of the Southwark Bridge Road. These are for the Southwark and Vauxhall Water Company. From Southwark Square westwards a 12-inch gas-main is laid for the Phœnix Gas Company. The two water-pipes are the deepest, and in crossing three side entrances the arches have been cut through. The arch of the first, nearest High Street, has been very indifferently made good, but the pipes do not show on the under side of the arch. In crossing the arch of the second the brickwork has been entirely cut through, and one pipe protrudes from one to two inches from the under side. In the third the same thing occurs—namely, one pipe shows on the under side, and the brickwork has been very clumsily repaired. The water-pipes have been kept deeper than the gas-main, in order to keep the water cool, and the latter, though the largest pipe, does not protrude under the arches of the side entrances. I understand that these three pipes are to be laid on the north side of the street, so that fully one-third of the carriage-way will thus have been disturbed, and the concrete arched foundations broken through, thereby ruining the paving, which will not now last a fourth of the time it would if it had not been disturbed.

J. W. BAZALGETTE, Engineer.

A report was also presented from the solicitor of the board, condemning the proceedings of these companies on the ground of their illegality.

Mr. COLLINSON said on Monday last he passed through Southwark Street, and he saw the men engaged in breaking up the pavement, which had been so solidly laid that to get out the concrete they had to break it up with wedges and sledge-hammers. Having done so, and laid their pipes in the trench, they had at hand a water-cart, from which they put water over the old concrete to make it soft, and then put it back again. He asked the board, therefore, after the great expense they had gone to in laying down this paving, how could they expect to have a proper roadway, which had been broken up with so much force, by merely putting back the old concrete saturated with water. Until the roadway was laid with fresh concrete, it would never wear in a proper manner.

Mr. CARPMAEL said if they were to construct subways at a great expense, and gas and water companies were to be at liberty to take off a portion of the arches of the side entrances, for the purpose of laying down their pipes, and damaging the property of the board, it struck him that it would be necessary for them to go to the Court of Chancery for an injunction to restrain them from doing further mischief. If in the present instance they chose to interfere with their side entrances to the extent of one or two inches, they might next go on ten or twelve inches in a similar way, and damage their property, for they did not seem disposed to reinstate what they had interfered with in a proper way. He considered these subways as the cellars of the board, and if gas and water companies thought fit to break into these cellars for their own purposes, they should obtain the best information they could, and at once take up the excellent suggestions of their own solicitor. One question appeared to him to be perfectly clear, that they could prevent these parties from doing further mischief, as they could carry their pipes in another direction, and were not compelled to go through this street. They, however, found it to be extremely convenient to do so, as it was by a straight line and not by a circuitous route, and, not content with that, broke through the arches of their side entrances. He trusted this matter would be very fully inquired into.

Mr. FREEMAN said he hoped these two reports would be referred to the Streets Committee, with a view of ascertaining how far gas and water companies were justified in encroaching on the property of the board. If they broke up the street, and put in an improper description of concrete, that would rest with the district board, whose duty it was to see the paving reinstated in a proper manner.

The CHAIRMAN said the reports which had been presented were most discouraging to them. The board had set an example in the formation of a model street, and it was really most disheartening to them that it should so soon be broken up and destroyed.

Mr. NEWTON suggested that a copy of the engineer's report should be printed and circulated in the same way as the other communications upon this subject.

Mr. COLLINSON moved—"That a copy of the engineer's report be sent to the gas and water companies, and referred to the Streets Committee, and that they be instructed to take such steps as they may be advised to protect the interests of this board."

This motion was seconded, and unanimously agreed to.

It was further agreed that each member of the district board should be furnished with a copy of the engineer's report.

THE CITY GAS-WORKS AND THE THAMES EMBANKMENT.

The CHIEF ENGINEER laid before the board the following documents in reference to the Thames Embankment and the City Gas-Works:—

Engineer's Department, Nov. 30, 1865.

Thames Embankment and City Gas-Works.

I submit herewith a letter I have received from the City of London Gas Company (with copy of my reply thereto), in answer to the communication I addressed to the company, informing them of the resolution of the board of the 20th of October last, instructing me to prepare plans and specifications for the Thames Embankment North (Contract No. 3), in accordance with the plans sanctioned by Parliament.

J. W. BAZALGETTE, Engineer.

The following is the communication above referred to:—

City of London Gaslight and Coke Company,
Dorset Street, Salisbury Square, E.C.,
London, Nov. 22, 1865.

Thames Embankment and Metropolitan District Railway.

Sir,—I am desired by the directors of this company to remind you that they have been expecting to receive from you a further communication upon the above subject, and also the plans and sections of any intended works which may affect their premises.

My directors also desire me to observe that they are kept in a state of painful suspense by the delays of your board, and they cannot but feel that their endeavours to reconcile the conflicting interests of the public and their shareholders should be supported to the fullest possible extent by those who have to carry out the provisions of the Embankment Act.

In my former letter I referred to some of the reported proceedings of your board, which had led my directors to conclude that any practicable scheme for carrying out the provisions of the two Acts would virtually annihilate the undertaking of the company, and my directors have since had under their serious consideration all the circumstances connected with the site of their works, and also various suggestions for overcoming any difficulties in the way of a satisfactory arrangement. The initiative in that respect not having been taken by your board, my directors are unable to determine whether certain rumours which have reached them are groundless or based on a foundation of truth. They are, however, desirous of avoiding the possibility of any future misunderstanding, and, with that view, I am desired distinctly to inform you that any and every proposal or suggestion which may emanate from your board in a tangible shape, will receive their immediate attention, and that they do not desire to obstruct the progress of the Thames Embankment, or any other works which your board are empowered to execute. The interests of their shareholders must of course be protected, but if anything can be done to meet the views of your board without sacrificing such interests, my directors will be happy to afford every assistance in their power.

Requesting the favour of an early reply,

(Signed) R. J. MILLAR, Secretary.

J. W. Bazalgette, Esq., C.E.

To this communication was returned the following reply:—

Engineer's Department, Nov. 24, 1865.

Thames Embankment (North) and City Gas-Works.

Sir,—I was not aware that the directors of the City Gas-Works were expecting any further communication from me. In my letter to you of the 23rd ult., I informed you that I had then just received my instructions from this board to prepare the contract drawings for the Thames Embankment and roadway, from the east end of the Temple to Blackfriars Bridge, in conformity with the terms of the Thames Embankment Act, and, as I stated in that letter, it was with a view of consulting the convenience of the City of London Gas Company that I had requested to be placed in communication with their engineer during the preparation of these plans. The gas company having declined that proposal, I have no option but to proceed with the preparation of the contract drawings unaided by any suggestions by the gas company's engineer on their behalf. Those drawings will not be completed for three or four months, and though when completed I shall be happy to show them to your company, it would at that time certainly be very inconvenient and occasion much delay to have to alter the works.

The question of the formation of the Metropolitan Railway in front of the gas-works, is to a considerable extent distinct from the works of this board, and the railway company have been requested to confer with you with a view, if possible, to come to terms with your company before they apply to this board for its sanction to their works.

I am, Sir, your obedient servant,

(Signed) J. W. BAZALGETTE.

R. J. Millar, Esq., Secretary, City of London Gas Company.

A resolution embodying the views of the engineer was passed, and ordered to be transmitted to the City of London Gas Company.

After transacting some other business the board adjourned.

DR. WHITMORE'S REPORT ON THE QUALITY OF THE GAS SUPPLIED IN ST. MARYLEBONE, IN NOVEMBER, 1865:—

NOVEMBER.	Illuminating Power in Sperm Candles.			Mean Pressure in 10ths of an inch.	
	*Mean of 25 Observations.	Highest.	Lowest.	Highest.	Lowest.
Imperial Company's gas	14·64	16·44	12·83	22·60	8·51
Chartered Co.'s common gas . .	13·83	15·78	12·77	30·75	12·47
Chartered Co.'s cannel gas . . .	21·90	24·94	20·59	23·18	12·65

All the gases consumed in the parish have shown very satisfactory results as regards both their illuminating power and purity. Their intensity of light has been tested daily, and at different periods of the day, and on no occasion has it been, in either of them, below the standard. The average light of the Imperial gas has been rather more than 14½ sperm candles, the Chartered common gas nearly 14 candles, and the cannel gas nearly 22 candles. It would be more satisfactory if the pressure of the Chartered gases were at times less than it is; on some occasions it reaches to 3½ inches, and, when that is the case, unless the consumption be carefully regulated—which generally is not done—the combustion of the gas must necessarily be very imperfect. With regard to the Imperial gas, during the present dark, foggy weather, an improved day pressure is wanted.

DR. WHITMORE'S REPORT ON THE QUALITY OF THE WATER SUPPLIED IN ST. MARYLEBONE, IN NOVEMBER, 1865:—

NOVEMBER.	Total Solid Matter in degrees or grains per Imperial gallon.		Organic Matter in degrees or grains per Imperial gallon.		Ammonia.
	Nov., 1864. 0°	Nov., 1865. 0°	Nov., 1864. 0°	Nov., 1865. 0°	0°
Distilled Water . . .					
West Middlesex water	17·46	21·20	2·12	1·92	....
Grand Junction water	17·44	21·68	2·0	1·96	....
Pump, Princes Street, Oxford Street . . .	Jan., 1865. 68·96	38·08	Jan., 1865. 6·56	2·88	·848
Pump, Newman St., Oxford Street . . .	....	88·80	....	5·92	1·036

—As might have been expected from the late heavy rains, the quantity of organic matter contained in the Thames companies water during the past month has been greater than in the month preceding; but, considering that this impurity must necessarily, for the most part, be vegetable, the deterioration of the water is of less importance than if it were produced by animal matter. The boasted superiority of the water from Loch Katrine for drinking purposes, which is found to contain no organic matter, and not more than two or three grains of inorganic, and which now supplies the city of Glasgow, has to be proved by the test of time. There can be no doubt that any amount of organic matter in the water we drink, however small, especially animal, is objectionable; but, as regards the mineral constituents found in the rivers and wells in and near London, of which salts of lime constitute a large proportion, it is a subject well worthy of consideration, to determine whether such water as this does not contribute to supply the earthy matter which gives solidity and hardness to the bony structure of the human frame, for, if not, it seems difficult to tell from what else in our daily sustenance it is derived.

DR. HILLIER'S REPORT ON THE GAS SUPPLIED BY THE IMPERIAL COMPANY TO THE VESTRY OF ST. PANCRAS DURING THE MONTH OF NOVEMBER, 1865:—

Maximum light estimated by sperm candles according to the Act . .	15·4
Minimum light—sperm candles	13·6
Average light—sperm candles	14·3
Traces of ammonia, indicated by turmeric test-paper . . .	Constantly.
Traces of sulphuretted hydrogen, indicated by lead test-paper. .	None.

The illuminating power of the gas has been uniformly maintained, averaging 14·3 candles. Chemically the gas has contained an excess of ammonia; it has been free from sulphuretted hydrogen, but contained in 100 cubic feet 27 grains of sulphur instead of less than 20 grains, the quantity permitted by the Act.

SOUTH SHIELDS.—These works have been recently entirely reconstructed by the engineer, Mr. W. J. Warner, and now rank amongst the most efficient in the north of England. In consequence of the suppression of several private gas-works, and from the general increase in the consumption of gas in the district supplied by the company, the quantity made in November last was 11,173,000 cubic feet against 4,255,000 in November, 1864, being an increase of 6,918,000 cubic feet. The month's consumption of Messrs. Palmer's shipbuilding yard at Jarrow was upwards of 1,000,000 cubic feet. The price varies from 3s. 8d. per 1000 feet to small consumers, down to 2s. 6½d. to consumers of upwards of 500,000 feet per quarter.

PURCHASE OF THE CARLISLE WATER-WORKS BY THE CORPORATION.—On Thursday, a special meeting of the Carlisle Town Council was held, for the purpose of considering certain terms upon which it was proposed to transfer the water-works from the present private company to the corporation. A committee recommended the payment of £13. 10s. each for the original £10 shares of the company, or a total sum of £29,700. A very warm debate ensued, which lasted nearly three hours. On a division, 13 members were in favour of the terms, 10 opposed, and 6, being shareholders as well as councillors, could not vote.

ST. OLAVE'S DISTRICT BOARD.—The publication of Dr. Northcote Vinen's reports on the illuminating power and quality of the gas supplied by the Surrey Consumers Company has been suspended by order of the board. At its last meeting, the gas examiner made the following special report on the impurity of the gas supplied by the company on the 25th ult.:—"Nov. 27th. Finding, on Saturday night last, that the gas supplied to the district was very offensive, I went, accompanied by the inspector, to the Surrey Gas-Works to endeavour to ascertain the cause. None of the higher officials were present, but we were at once admitted, and after spending some time in examining the process there going on, we discovered that the gas sent out from the works contained a considerable quantity of sulphuretted hydrogen. No one on the works appeared to be aware of this, and on leaving between twelve and one o'clock, a messenger was sent to the engineer. On visiting the works again to-day I saw the engineer, who explained to me what he considered to be the cause of the impurity of the gas, viz., the accidental fracture of one of the valves of the hydraulic main, whereby a quantity of impure gas became mixed with the purified. The engineer appears to have taken the most prompt means for preventing any further cause of complaint by shutting off the impure gas from the mains supplying the district, and taking the supply from another source by putting other purifiers at work, getting a fresh supply of oxide of iron for this purpose, and by removing the defective valve for repair. These works I saw in operation, a large number of additional men being employed day and night. By these means gas of the utmost purity was supplied to the district on Sunday evening."

ANALYSIS OF THE METROPOLITAN WATERS IN OCTOBER, 1865, BY PROFESSOR FRANKLAND, F.R.S., OF THE ROYAL COLLEGE OF CHEMISTRY:—

Names of Water Companies.	Solid Matter in 100,000 parts of the Waters.	Organic and other Volatile Matter.	Amount of Oxygen required for oxidation of Organic Matter.	Degrees of Hardness.*		
				Permanent.	Temporary.	Total.
Thames Water Companies.						
Chelsea	24·98	1·83	·1606	6·7	7·8	14·5
West Middlesex	25·30	1·96	·1076	6·4	11·1	17·5
Southwark and Vauxhall . . .	29·32	2·32	·1321	8·2	9·5	17·7
Grand Junction	26·99	1·67	·0943	6·8	11·0	17·8
Lambeth	22·76	2·17	·1950	7·6	5·4	13·0
Other Companies.						
Kent	38·08	1·04	·0136	9·7	17·7	27·4
New River	27·59	0·73	·0421	5·5	15·6	21·1
East London	29·14	2·42	·1341	9·0	13·2	22·2
South Essex	40·54	1·44	·0140	8·2	18·3	26·5

The table may be read thus—100,000 lbs. of the Chelsea water contained 24·98 lbs. of solid matter, of which 1·83lbs. of organic and other matters were driven off by incineration. ·1606lbs. of oxygen were required to destroy organic matter in the said quantity of Chelsea water. Of the solid matter 14·5lbs. are carbonate of lime or its equivalent; of which 7·8lbs. are got rid of by boiling, and 6·7lbs. remain.

With the exception of the water supplied by the Lambeth Company, all the waters exhibit this month a marked increase in the total amount of solid impurity. The organic and other volatile matters, and the amount of oxygen required for the oxidation of the organic matter, have increased in a still more striking manner in the case of the waters of the East London and of those companies which draw their supplies from the Thames. The quantity of oxygen required to oxidize the organic matter varies from twice up to four times the amount required in October. The waters of the Chelsea, Lambeth, Southwark, and East London Companies were turbid when drawn from the companies mains. The second column of this table contains the amount of solid matter left on evaporation and desiccation at 130° C. (= 266° F.) The results are recorded in 100,000 parts. By moving the decimal point one place to the right, the above figures express in milligrams the quantities contained in one kilogram of the several waters.

* The degree of hardness hitherto employed by chemists is that first proposed by Dr. T. Clark, viz., one grain of carbonate of lime, or its equivalent, in one imperial gallon of water, or one part in 70,000. The degrees of hardness used in the above table are readily converted into Clark's degress by multiplying by 7 and then moving the decimal point one place to the left.

Share List of Metropolitan Gas Companies.

No. of Shares issued.	Amount per share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum	Price per Share.
	£		£ s d	£ s d	£ s d
5000	10	Anglo-Romano . .	10 0 0	9 0 0	10 to 12
5000	20	Bahia (Limited) . .	20 0 0	3 0 0	
1000	20	Do., preference .	20 0 0	10 0 0	28 0 0
750	20	Do., do., redeem.	10 0 0	10 0 0	12 to 13
20000	5	Bombay (Limited) .	5 0 0	£5 intr.	5⅜ to 5⅝
10000	5	Do., second issue	5 0 0	£5 intr.	5⅜ to 5⅝
10000	5	Do., third issue .	3 0 0	£5 intr.	3⅜ to 3⅝
5000	20	Brit. Provincial L.	20 0 0	7 10 0	29¼ to 30¼
8200	20	Do., new . . . . (Norwich, Hull-Sculcoates, Hanley, Tunstall & Shelton (Potteries), Trowbridge & Holywell.)	20 0 0	7 0 0	27 to 27½
12000	50	*Chartered*	50 0 0	10 0 0	70 to 71
6000	50	Do.	30 0 0	10 0 0	39 to 40
10680	20	*C of London*, Ash.	20 0 0	10 0 0	28¼ to 29
10000	10	Do., B shares	10 0 0	4 0 0	7 5 0
8000	10	Do., new shares	10 0 0	10 0 0	15 to 15¼
35000	25	City of Moscow (L.)	5 0 0	£7 intr.	2½ to 3¼
17490	25	Colonial & General *Commercial*	25 0 0	10 0 0	42 to 44
8000	20	Continental G. & W.	6 0 0	6 0 0	
2500	20	Continental Union.	20 0 0	8 0 0	18 to 19
17500	20	Do.	10 0 0	8 0 0	9 to 9½
5827	5	County & Gen. (L.)	5 0 0		
2000	5	Do., preference . (Pair, Pembroke, Ely, Lea Bridge, Northfleet, Walton, & Ware.)	5 0 0	6 0 0	
5000	10	*Crystal Pal. Dist.*	10 0 0	10 0 0	15¼ to 16
9000	10	Do., preference .	10 0 0	6 0 0	12½ to 13
4000	50	*Equitable*	50 0 0	10 0 0	79½ to 80
4000	25	Do., new shares .	21 0 0	10 0 0	35 to 36
23406	10	European (Lim.) .	10 0 0	10 0 0	13½ to 13⅝
12000	10	Do., new shares. (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	10 0 0	6¼ to 6⅞
20000	10	*Great Central Gas Consumers* . .	10 0 0	10 0 0	14½ to 15¼
5000	10	Hong Kong (Lim.)	10 0 0		11 to 12½
26000	50	*Imperial*, old sh.	50 0 0	10 0 0	81 to 82
1300	100	Do., bonds . . .	£100	10 0 0	197 to 198
7000	25	Imperial Austrian .	10 0 0		
28000	50	*Impl. Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam, Aix-la-Chapelle, Antwp., Bordeaux, Brussels, Cologne, Frankfort-on-M., Haarlem, Stolberg, Toulouse, & Vienna)	43 15 0	16 0 0	94½ to 95
3000	40	*Independent* . . .	40 0 0	10 0 0	65 to 70
3000	10	Do.	10 0 0	5 0 0	8 to 9
3000	20	Do.	10 0 0	7 10 0	11 to 13
6886	50	*London*	50 0 0	10 0 0	72 to 73
5519	25	Do., 1st pref. .	25 0 0	6 0 0	29 to 29½
568	50	Do., 2nd pref. .	50 0 0	6 0 0	
219	50	Do., 3rd pref. .	50 0 0	6 0 0	
16781		Do., 1st pref. sh.		6 0 0	
11828		Do., 2nd pref. sh.		5 0 0	
12000	5	Malta & Medit. (L.)	5 0 0	2 10 0	
30000	5	Oriental, Calcutta	5 0 0	8 0 0	5⅜ to 6
30000	5	Do., new shares.	1 0 0	8 0 0	1 to 1¼
10000	5	Ottoman (Limited)	5 0 0		3½ to 4
10000	10	Parà (Limited) . .	10 0 0	£5 intr.	10½ to 11
27000	20	*Phœnix*	20 0 0	10 0 0	31 to 33
3600	100	Do., new	10 0 0	7 10 0	14 to 16
144000	Sk.	Do. (capit. profits)		5 6 0	
5000	20	*Ratcliff*	20 0 0	10 0 0	31 to 33
20		Rio de Janeiro (L.)	20 0 0		20 to 20½
4138	5	Singapore (Lim.) .	5 0 0		
2000	5	Do., preference .	5 0 0	7 10 0	
		Shanghai			
4000	50	*Sth. Metropolitan*	50 0 0	10 0 0	80 to 82
15000	10	*Surrey Consumers*	10 0 0	10 0 0	14½ to 15
10000	10	Do., new	4 0 0	10 0 0	7 to 7¼
9000	50	United General . . (Dublin & Limerick)	50 0 0	4 12 0	29½ to 30¼
10000	10	*Victoria Docks* . .			
1500	10	*Wandsworth & Putney*	10 0 0	7 10 0	
1500	10	Do., new shares.		7 10 0	
26000	10	Western (Limited)			
		A shares.	10 0 0	10 0 0	16 to 16½
10000	10	Do., B shares.	5 0 0	10 0 0	8½ to 9
10000	10	Do., C shares.	3 0 0	10 0 0	5½ to 6
20000	10	Do., D shares.	1 0 0		1¼ to 2
8000	5	*West Ham*	5 0 0	7 10 0	6 10 0
6000	5	Do., new shares.	3 0 0	7 10 0	3 18 0
551	10	West London Junction (Lim.) . . .	10 0 0	6 0 0	
520	10	Do., preference .	10 0 0	6 0 0	

LENOIR'S GAS-ENGINE.—Dr. Crace Calvert, in the second Canton Lecture, at the Society of Arts, on some of the most important chemical discoveries of the last two years, thus speaks of Lenoir's Gas-Engine:—"It is the production of motive power through the combustion of coal gas, and you will, I hope, appreciate the discovery due to M. Lenoir if you call back to memory the efforts which have been made for the last twenty or thirty years to generate power by employing the expansion which air or other gases undergo under the influence of heat, as a substitute for steam—the long-promised success and the unfortunate failures of Ericsson. What specially recommends the engines of M. Lenoir is their safety, for there is no danger of explosion; their cleanliness, for they require no fuel; their simplicity, which enables those who employ them to use them in any room, at any height, and at any spot where motive power may be required; for they have only to erect a little engine of one or two horse power, and whenever they require to use it, all they have to do is simply to bring into contact two poles of a battery, when the fluid so generated will traverse space, and convey motive power to the gas-engine. Lastly, these engines are extremely economical in their working, for they consume only 70 feet of gas per horse power per hour; and assuming that 1000 feet of gas is worth 4s. 6d., the cost of working an engine of one-horse power will be about 4d. per hour. M. Lenoir's engine is very similar to the ordinary steam-engine, having a cylinder, piston, crank-shaft, and fly-wheel. The following proportions of gas are admitted in the cylinder:—One volume of gas (coal gas) mixed with twelve volumes of atmospheric air. This mixture is ignited by the electrical spark from a battery connected by wires at each end of the cylinder. The connexion being made and broken by the rotatory action of the crank-shank, the expansive force necessary to move the piston of the engine is produced by the ignition of the gas, which not only produces steam and carbonic acid by their combustion, but by the heat generated increases their volume to a sufficient extent to force the piston to travel backwards and forwards, thus producing motion. The engine once fixed, the battery charged, and the gas turned on, it is ready for action, and as the work required is completed the gas is shut off, the engine stops, and the expense ceases. The facility for employing Lenoir's engine in countries where coal is not easily attainable has been increased by substituting for coal gas a mixture of oxide of carbon and hydrogen, which can easily be procured on a commercial scale, at a small cost, by passing steam over heated charcoal, the water being decomposed, its hydrogen being liberated, and its oxygen combining with the carbon, itself produces oxide of carbon, and the mixture of these gases is a cheap and good substitute for coal gas. Consequently, M. Lenoir's engines can be employed with great advantage in our British colonies, and in South America.

Price Current.

CASTINGS.—*Per Ton.*

Average Weight of Cast-iron Gas-pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lb

Retail Prices are 5 to 10 per cent. higher.	London.			Glasgow.			Newcastle			Wales.			Yorkshire, Derbyshire, and Staffordshire.		
	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.	£.	s.	d.
Pig Iron, No. 1, G.M.B.	5	17	6	3	18	6	2	12	6	3	5	0	3	15	0
1¼ and 2-inch Socket-pipes	7	10	0	6	0	0	6	15	0	6	15	0	7	10	0
2½ and 3-inch ditto	7	0	0	6	0	0	6	5	0	6	10	0	7	0	0
4 and 5-inch ditto	6	10	0	5	10	0	5	15	0	6	0	0	6	10	0
6 inches and upwards ditto	6	5	0	5	0	0	5	10	0	5	15	0	6	5	0
Retorts, 1st fusion, hot blast	6	0	0		—		5	5	0	5	10	0	6	0	0
Ditto, 2nd ditto, cold ditto	7	0	0	5	15	0	5	15	0	6	0	0	7	0	0
Tank-plates, ¼ thick and above	6	10	0	5	10	0	5	10	0	5	15	0	6	5	0

WROUGHT-IRON TUBING,

Subject to 50 per cent. Discount.

	2 in.	1½ in.	1¼ in.	1 in.	¾ in.	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 12 feet—per foot		1 0	0 10	0 7	0 5	0 4½
Ditto ditto, from 6 inches to 18 inches—each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting-pieces, or Long Screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, Springs, and Elbows (wrought iron)	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, ditto	4 6	3 0	2 6	2 0	1 6	1 2
Iron Cocks	17 6	9 6	7 6	4 6	3 3	2 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and Nipples	1 3	0 9	0 8	0 6	0 5	0 4
Plain Sockets	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 2-quart	15 0	14 0	13 6	13 0	12 0	—

GAS COALS.—*Per Ton.*

Newcastle.—Unscreened:—

Brancepeth, Burnhope, East Castle, Haswells, Lanchester's Pelaw, Nettlesworth Primrose, and South Pelaw	6s. 6d.
Dean's Primrose, Felling, North Felton, Redheugh Main, Walker's Primrose, West Wear, and Whitwell Primrose	6 9
Craghead, Charlaw, Derwent, Edmondsley, Eighton Moor, Hartlespool Pelaw, Holmside, Lambton's Gas, Medomsley, Mickley, New Pelaw, New Felton, Pelaw Main, Ravensworth, South Moor Felton, South Leverson, Townley Main, Tyne Main, Washington Hutton, West Pelaw, Wearmouth Hutton, and Witton	7 0
Peareth, Ravensworth Pelaw, Waldridge, West Garesfield, and West Pelton	7 3
Pelton, South Peareth, Stella, Urpeth, and West Leverson	7 6

Scotch Cannel:—

Boghead (at Leith)	45 0
Kirkness, best	23 0
Capeldrae, 1st quality	20 0
Ditto, 2nd ditto	12 6
Losmahago (at Glasgow)	24 6
Ditto (at Granton)	25 6
Arniston	27 6
Wemyss	20 0
Haywood, Wilsontown (at Granton)	14 0
Pirnie	14 0
Lothian's Cannel (free on board at Leith)	25 0
Myles' Cannel	21 0

FREIGHTS.

Coastwise—Newcastle.—Per Ton:—

Chatham and Rochester	6s. 9d. to 7s. 6d
Cork	9s. 6d. to 10 0
Dover, Folkestone, and Rams.	6s. 9d. to 7 0
Dublin	10s. 0d. to 10 6
Exeter Quay	10 0
Ipswich	6 6
London (from Leith)	9 0
London (Pool)	6s. 9d. to 7 0
Lowestoft and Yarmouth	5s. 9d. to 6 0
Portsmouth and Southampton	8s. 6d. to 9 0
Plymouth	9 9
Shoreham	8 0
Whitstable	8 6
Weymouth	9 0

Foreign.—Per Keel:—

Barcelona	23 10
Bordeaux	16 0
Boulogne and Calais	9 10
Cadiz	17 0
Copenhagen	10 0
Genoa	23 10
Hamburg	11 10
Havre de Grace	£10. 10s. 11 0
Leghorn	21 0
Lisbon	16 0
Rotterdam	11 0
Stettin	10 0
Trieste	20 0
Venice	21 0

SUNDRIES.

Best Nstle. Fire-bks., p. 1000, £2. 10s. to £2	15 0
Cliff's Fire-bks. (at Wortley), p. 1000.	2 15 0
Ingham's ditto (at Wortley), p. 1000..	2 15 0
Fire-clay Retorts, p. ft. run, 9s. 6d. to	0 7 0
Tough Cake Copper, p. ton	119 0 0
English Pig Lead, p. ton	20 15 0
Welsh Bar Iron (in London), p. ton ..	7 12 6
Foreign Spelter, p. ton	22 10 0
English Block Tin, p. ton	102 0 0
Banca, p. ton	97 10 0
Tarred Rope Yarn, p. cwt.	1 0 0

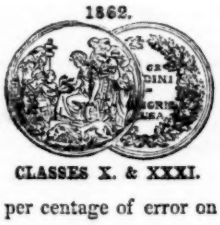
Advertisements.

GEORGE GLOVER & CO.'S

IMPROVED DRY GAS-METERS,

STANDARD GASHOLDERS, AND TESTING APPARATUS.

Extensive experience, in this country and abroad, has proved the superiority of their Improved Dry Gas-Meters, which have come more rapidly into general use than any Meter hitherto manufactured.—The printed Report of the official Inspector of Gas-Meters for the City of Manchester, for the year ending 1863, shows that 5 *new Wet* Meters; and that *George Glover and Co.'s Improved Dry Gas-Meters stand highest in point of accuracy*, as shown in the following extract:—



tested 5707 *new Dry* Gas-Meters, and only

"George Glover and Co., per centage of error on the number tested, 2·116.
Thomas Glover ,, ,, ,, 2·812.
Croll, Rait, and Co. ,, ,, ,, 5·540.
Thomas Fletcher ,, ,, ,, 15·121.
Joseph Boulton ,, ,, ,, 25·000."

Ranelagh Works, Ranelagh Road (near Pimlico Pier), London, S.W.; and 15, Market Street, Manchester.

THE

GAS-METER COMPANY, LIMITED,

(LATE CROLL, RAIT, & CO.,)

Beg to intimate that the printed report of the official inspector of Gas-Meters for the City of Manchester for the year ending **1864** shows the following comparison :—

NEW METERS TESTED.

Of the Gas-Meter Company, Limited . .	Dry . .	1116	
	Wet* . .	1292	
Total		——	**2408**
Of George Glover and Co.	Dry		383

* The Unvarying Water-Line Gas-Meter, in regard to which the following extract from said report refers :—"The visiting justices will perceive, from a comparison of the tables now appended with those of last year (viz., 1863), *that there has been a large increase in the number of new wet meters tested, owing to the Gas Committee having substituted the wet for the dry in the case of hired meters.*"

Extract from printed report of the said official inspector for the year ending 1862, shows the following comparison :—

Croll, Rait, and Co., per centage of error on the number tested . . 8·671
George Glover and Co. „ „ „ . . 22·727

JOSEPH BOULTON,

PATENT DRY & IMPROVED WET GAS-METER MANUFACTURER,

80, KING'S CROSS ROAD, AND 10½, GREAT PERCY STREET,

CLERKENWELL, LONDON,

Begs respectfully to call the attention of the London and Provincial Gas Companies to an attempt which is being made by Messrs. George Glover and Co., Ranelagh Works, Ranelagh Road, Pimlico, to depreciate his Meter and those of other makers, by the publication of an extract from the Official Report of the Manchester Meter Tester for the year ending 1863, from which they wish it to be understood that the dry meter has obtained so prominent a position in Manchester that the wet meter is entirely excluded, thereby misleading the public; the fact, however, being that in the year 1864, the Gas Committee of that city passed a resolution against dry meters altogether, and have reverted to the exclusive use of wet meters. This proves the assertion as regards the use of dry meters in Manchester, given out by them at the present time, to be inaccurate; to confirm which, as well as to prevent the public from being misled in reference to the meaning of "per centage of error," Joseph Boulton directs attention to the following letter :—

GAS-METER TESTING OFFICE, *Bootle Street, Manchester, September* 16, 1864.

MR. J. BOULTON.

Dear Sir,—I am in receipt of your favour of the 15th inst., calling my attention to a Circular issued by Messrs. George Glover and Co., and based upon returns given in my last Report, 1863, wherein the per centage of error is mentioned. I am exceedingly sorry that those returns should have been used to the prejudice of your interest, or any other maker of meters, by Messrs. George Glover and Co., merely because they stand at the minimum per centage of error. These returns were compiled, by request, for the information of the Justices and Town Council of Manchester only, and not for the purpose of allowing any one maker to advertise by it, to the disadvantage of another.

With regard to your dry meter, I can testify to its being equal to any that are at present in the market for excellence of workmanship and material, and reliability of registration, and this I speak from my own experience of your meter prior to my present appointment, and also from subsequent knowledge as inspector; and I beg to assure you that the per centage of error as shown against your meter, or any other maker, *does not, in my opinion*, reflect in the least upon the merits of such meters as regards their construction, durability, and correct indication, but merely refers to the adjusting of the measuring capacity to the limit of range of 5 per cent., as per Act.

I append to this letter an extract from my last Report, which will convince you that I do not draw the same inference from the results as the firm named. I may here mention that the Gas Committee of this city have again reverted to the exclusive use of wet meters.

I am, dear Sir, yours faithfully,
(Signed) JAMES URQUHART, *Inspector.*

Note.—The per centage of error indicates only the condition of the meters as sent from the works of the maker to the inspector's office for verification and stamping in accordance with the Act. The public purchasing meters, of whatever make, providing they bear the Government stamp, have a guarantee that such meters will not register more than 2 per cent. in favour of the seller, or 3 per cent. in favour of the consumer of gas, the extreme difference sanctioned by the Act.

Without detracting from the qualities of any other meter whatever, Joseph Boulton wishes to state the fact, that Mr. Daniel Horton, of Liverpool, and Mr. James Urquhart, of Manchester, Official Gas-Meter Testers for those cities, distinctly affirm, that better meters than his, in every respect, are not made by any one in the trade. Joseph Boulton confidently says, that he uses only the best materials of the various kinds in their construction, and pays more for labour in the manufacturing of dry meters than any other maker, so as to secure the most skilled workmen.

September, 1865.

NOTICE OF REMOVAL.

On and after the 20th of December next the business of

WILLIAM SUGG,

GAS ENGINEER,

will be removed to his New Factory,

VINCENT WORKS, VINCENT STREET,

REGENT STREET, WESTMINSTER.

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TO CORRESPONDENTS.

No notice can be taken of anonymous communications. Whatever is intended for insertion, must be authenticated by the name and address of the writer; not necessarily for publication, but as a guarantee of good faith.

NOTICES.

The subscription is 15s. per annum, if paid in advance during the month of January, or 18s. credit, in two sums of 9s. each, in July and January of each year. Post-Office orders must be made payable at the Charing-Cross Money-Order Office, to William H. Bennett, No. 42, Parliament Street, Westminster.

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Stamped copies, when forwarded by post, must be folded so as to expose the stamp; they are otherwise liable to the full postage charge for letters.

All Communications to be addressed to the Editor, No. 42, Parliament Street, Westminster; and orders for Advertisements to the Publisher, Mr. W. B. King, No. 11, Bolt Court, Fleet Street.

THE JOURNAL OF GAS LIGHTING, WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, DECEMBER 26, 1865.

Notes upon Passing Events.

AFTER bread and meat, milk is one of the principal necessaries of life. On milk the young depend, or ought to depend in this English climate, for early, healthy food. The milk of London has long been a byword for everything that was counterfeit, and something that was nasty. Calves brains, chalk, and divers chemical recipes, have been credited to the London milk. The supply of milk, like that of meat, has been seriously diminished, and is still more seriously threatened, by the cattle plague. Under the influence of prejudice and panic, closet philosophers have been anxious to extinguish the present system altogether, to abolish all metropolitan cowhouses, and rely on railway conveyance for the total supply. In this uncertain state of public feeling, we are indebted to Mr. J. C. Morton for a careful, conscientious, intelligent collection of facts on the milk supply of London, embodied in a paper read before the Society of Arts during the Smithfield Club Show week. This paper dispels many prejudices, and for the first time places the public in a position to legislate rationally on the regulation of the metropolitan milk-houses. Mr. Morton—who was well acquainted with the largest milking establishments out of London—visited 51 cowhouses within the bounds of the metropolis, including the best and the very worst. He also followed the milk from the wholesale dealers to the retailers, and tested the quality in large and small shops. He visited cowhouses in the Hendon district, Islington, St. John's Wood, Marylebone, St. Pancras, the Strand, the City, Chelsea, Clerkenwell, Bethnal Green, Mile-End Old Town, Belgravia, and Limehouse. As to quality, he comes to the conclusion that London milk, as a rule, is diluted or "stretched" with water, and with water only:—

Starting with a very strong impression that London milk is almost invariably diluted, I am bound to say that as you make your rounds among inspectors, dealers, and even its producers, you find (with many an exception where you cannot doubt the thorough honesty of the retail dealer) that this impression is equally strong in those who are most closely connected with the trade itself. Milk, incapable of being kept, and with more or less of a variable supply, must be stretched by dilution, more or less, to meet even a constant demand, and still more is a stretch of this kind required to meet an uncertain demand, varying considerably from day to day. But indeed it matters very little to the nourishment of the consumer, and not much, I will add, to the conscience of the producer, whether this dilution of the milk be produced by the direct addition of water or by feeding the cows on watery and succulent food. I saw two cowhouses in St. Pancras, one of which was in a wretched plight, the cows being extremely dirty and fed on the very poorest food—great quantities of distillery wash and of grains, with a little Covent Garden refuse greens—and the other over-full perhaps of cows, which, however, were cleanly kept and well fed on hay and mangel and grains, with a little meal. I would rather have milk from the latter of these dairies, notwithstanding that coming to it unannounced at milking time, I saw a can of beautifully clean water standing conveniently near to the tins into which the milk was being poured.

As to cowhouses, he says:—

My prejudices were those of a countryman—that cows are healthier and better, and yield the best and wholesomest milk in fields—that London cowhouses are a nuisance to be abated, and that they ought all to be removed outside—that the best way of supplying a large town with milk is to bring it from the country—that it is more reasonable, cheaper, better, to carry 10 lb. weight of milk from a country farm to the town consumer's door, than to carry 60 lb. or 70 lb. of green and other food from that farm to a cowhouse close by the consumer, there to convert it into the 10 lb. of milk which it will produce—and, finally, that Londoners are worse fed with milk than any considerable body of men, women, and children elsewhere in the island. The whole inquiry, I am bound to say, has led me very materially to alter these impressions. I now believe that London cowhouses need not be a nuisance—not so great a nuisance, certainly, as London stables—I believe that the milk made in them is better than what is delivered at the railway stations from the country—that it is a wiser, cheaper, and better thing to carry mangels, grass, and hay the few miles needed to the town than to carry one-sixth their weight of the milk they yield 20 or 30 miles from the country. I believe that cows in London cowhouses are and may be healthily and comfortably kept—nowhere more so—and that the risk of loss by disease, so far as regards the manner of their food and lodging, is not greater here than in the Gloucestershire and Cheshire pastures; and I believe that hitherto, in point of fact, London has been better fed with milk than the average of south country villages. These conclusions will startle and perhaps disgust some who may have come here expecting a wholesale condemnation of the London milk trade, with all its presumed abominations of filthy cowhouses and adulterations. I believe them, nevertheless, to be inevitable by any one who shall give sufficient time to a fair examination of the subject. They are the conclusions simply of an agriculturist anxious that the best food should be produced and offered to the customer.

A table prepared by Mr. Morton shows—

In eight cases out of nine in the Strand district, the milk was diluted up to 40 or 50 per cent. with water. In Kensington and Camden Town, a somewhat smaller proportion was found to be adulterated. In a late report to the Marylebone vestry, Dr. Whitmore, refers to the general results of analyses by himself, from which you gather that out of 20 samples indiscriminately purchased, there were only eight adulterated, and of the others some were particularly rich, containing 10, 11, and even 14 per cent. of cream. Dr. Druitt, in one of his quarterly publication, as medical officer for St. George's, Hanover Square, speaks of 82 analyses made in the autumn months of 1861, of samples purchased indiscriminately from 46 dealers all over that parish, and of these 22 proved to be "reasonably good;" 24, though probably genuine, were poor; 23 were of extremely low specific gravity from the addition of water, and three were in such a condition (it is supposed from artificial treatment), that they would not coagulate with rennet, and were probably therefore unfit for children.

Adulteration is practised largely by dishonest servants as well as by dishonest shopkeepers: on this Mr. Morton says:—

Adulteration can only be prevented by the establishment of analytic supervision—a scientific agency constantly employed in comparing the composition of the milk offered in the shops with that of the milk drawn from the cow. An agency of the kind would, doubtless, be a very efficient and useful department of police, and there seems no reason why quality should not be tested constantly in this way by comparison with the genuine article, seeing that quantity is being constantly determined by the official comparison of weights and measures with the proper standards. Suppose, however, that absolute honesty were (as I believe the per centage of honesty on the great scale to be) a pretty constant quantity and generally prevalent; how then about country milk as compared with that of the London cowhouse? Why, even then I believe the latter is likely to be the better of the two. First, it is more to the interest of the cowkeeper here to feed his stock well than it would be the interest of the cowkeeper there: the latter has conveniences for calving his cows and keeping them on; the former must sell his cows as they get dry to the butcher. Secondly, milk 50 or 60 miles, as very much now is, to London, must be at least 12 hours old before it reaches the consumer; that from the London cowhouse is

about four hours old, or barely so much. Thirdly, the shaking of the milk along the course of 50 or 60 miles of railway, and the rattling over the roads to and from the station is certain in a proportion of instances to injure the milk, in other cases utterly to spoil it—in all, I may say, so far to injure it that it will not keep so long nor be so useful for certain purposes. If you want to know the real value of one or the other you must find out, not what the consumers of it give, but what dealers in it can afford to give who supply the shops—that unquestionably is the true measure of its value. Dealers in milk will give from 4d. to 6d. per barn gallon more for town-shed milk than for what is delivered by the railways. And no wonder, for even now it often comes in sour, and what must it be in the hot weather of summer? It is with great regret indeed that the retail dealer finds himself cut off from his supply of town-shed milk, and forced to betake himself to the dealer from the country. London milk in London is worth more by a ½d. to ¾d. a quart than country milk in London. And that is a difference which would of itself be quite enough to account for the fact that bulky grass and mangels are carried many miles to London cowhouses, there to be consumed instead of being consumed by cows at home, even though there were not the great advantages which the London cowkeeper has in the close neighbourhood of the great breweries with their enormous supplies of grains. But whatever the superiority of the town-shed milk, it is plain from the way in which the cowhouses have been emptied by the plague, that London will hereafter be fed from the country more generally than it has been. We may assume London has been hitherto supplied by 24,000 cows, besides what it has got by railway. The Great Western Railway has sent very little up till latterly; that the North-Western has sent up 40,000, 60,000, and 100,000 gallons annually during the last three years; that the Great Northern has sent up 250,000 and 300,000 gallons in 1863-4; that the Great Eastern has sent up 600,000, 800,000, 900,000, and 1,000,000 gallons respectively in the last four years; that the South-Eastern has sent up 120,000, to 180,000 gallons; the Brighton about 50,000 gallons, and the South-Western about 400,000 gallons annually. Upwards of 2,000,000 gallons were thus brought up last year, and this must be added to the 24,000,000 gallons with which, exaggerating perhaps a little, we shall credit our 24,000 cows. We cannot, at any rate, make out more than 26,000,000 of gallons for the 3,000,000 of London population last year. This is rather more than 8 gallons a-head per annum; rather less than one fifth part of a pint of milk a day apiece.

A quantity evidently insufficient for maintaining the children bred in town in good health. These facts are enough for this week.

The Smithfield Club Show, at the Agricultural Hall, has taught us nothing as to the Rinderpest—no case was even suspected amongst the several hundred animals that were sent up to compete for prizes from various parts of the kingdom. But the Show has been remarkable for the total absence of disease of any kind. At previous Shows it has not unfrequently happened that not less than one-fifth of the cattle have, after the second or third day's exhibition, been sick with that inflammatory sort of cold known popularly as the foot-and-mouth disease. It was observed that in proportion as animals came from other shows, so did this disease rage. On this last occasion no cattle were admitted which had endured the excitement of a show within a month. The greater number of the cattle were brought up in covered horse-boxes. The result was that these special precautions were successful in securing the absolute health of some two hundred head of stock. At the close of the Show we are informed there was only one animal in the hospital, and that a case which in less suspicious times would have passed unnoticed. Hence we learn that, with more care in railway travelling, as well as in stalls and byres, it is quite possible to very much improve the general health of our horned stock. The Cattle Show week has had the effect of strengthening the hands of Government as regards measures for suppressing the cattle plague. Agricultural public opinion has shown itself unanimous in demanding the application of the most stringent Orders in Council for limiting the spread of contagion. Sharp action would occupy but a short time, occasion great distress, but be decisive. The total stoppage of live cattle transit and trade for eight weeks, would seriously affect the interest of the owners of ripe stock; it would perhaps ruin many graziers—it would perhaps add fifty per cent. to the price of meat—it would stop the earnings of a large class of men engaged in the sale of live cattle, from drovers up to butchers and cattle salesmen—it might cost the country in loss of profits a million, or two or three millions—but it would stay the ravages of a plague the end of which at this hour no man can see. Amongst other indirect effects, the cattle plague has forced the unpopular task of collecting agricultural statistics on the Government, without the sanction of an Act of Parliament. It is a return of the numbers of their stock, against which farmers have most stoutly protested. They have been comparatively indifferent as to the acreage of crops, and they have correctly argued that all estimates of corn crops would be fallacious and therefore useless. But they have said, "You might as well ask to see a farmer's banker's book as a "return of his live stock." The forms of returns are to be distributed through the tax gatherer—"officers of the Inland "Revenue"—and sent back through the post. The answers will be voluntary, but there is no doubt that next session a system of statistics will be embodied in an Act of Parliament and extended to all farm produce. To no class will it be so useful as to the agricultural, who now carry on their business in an ocean of guesses at truth.

The Common Council of London has opened up its internal economy to the public in a very remarkable manner in the debate on the motion for throwing open the Commission of Sewers to all the aldermen, deputies, and commoners. It was a case in which there was a great deal to be said on both sides. Curiously enough, the weakest speech was made by the chairman of the Commission, who chose, most unfortunately, to treat the question as one strictly personal, affecting him as an attorney, when really Mr. De Jersey's private character and profession had nothing to do with the question The case of those who proposed to swamp the Commission was straightforward enough. They said the Commission spend the money raised by the Common Council in taxes, and the ratepayers do not elect the commissioners. In all other corporate towns —Liverpool, Manchester, Bristol, Edinburgh—the corporation, as a body, control the paving, lighting, building, sewering, and have committees on each department; an unanswerable argument, if there were any likeness between the reformed and the unreformed corporation. The supporters of the existing system replied that the Commission consisted of 25 aldermen, 25 deputies, and 25 commoners; of whom the aldermen represented their respective wards in the usual manner, and the other 50, when annually elected, were known to be members of the Commission, and, if not agreeable to their constituents, could be rejected. Therefore they contended that the representation was as effective as if the 75 were swamped by including the whole 225 Common Council in the Commission. One opponent inquired whether the idea was not to have five committees to manage the business of the Commission, with each an allowance of about two hundred a year for expenses, and a five o'clock dinner, whatever that may mean. But this was an argument that cut both ways if it were true, and would be more appreciated by the out-of-door public, who think the Common Councilmen dine too much, than by the Common Councilmen, who think there cannot be too much dining. If the Corporation of London ever should pass through the purgatory which has prepared such corporations as Liverpool and Bristol for their present active functions, if the self-evident abuse of aldermen for life, common councillors for wards as rotten as Gatton or Old Sarum, and lord mayors practically elected by seniority should be abolished, there is no doubt that the Commission of Sewers would be extinguished in the new reduced Common Council; but, at the same time, a limit would be put on dinners and feeding expenses. It would probably be considered that seventy-five aldermen and councillors could do all the business, including the cleaning, sewering, and building of the City of London. The argument that produced the greatest effect on the side of those who desire "to "march on ancient roads" was, that as the Commission of Sewers had to obey the precepts and raise taxes for the Metropolitan Board, if the whole Common Council stepped into the shoes of the Commission, it would have to obey the orders, and thus render homage to, and acknowledge the sovereignty of Sir John Thwaites' parliament. The innovators carefully avoided arguing on the only ground that would have made their case irresistible. They did not venture on an array of facts and figures showing neglect, mismanagement, and extravagance on the part of the Commissioners. If they could only have shown such an example as the nine years spent over the incubation of the Smithfield Meat Market, such a wilderness as Victoria Street, such a "gut" as the Poultry, such a disgrace as Holborn Hill, why then the Commission would have had few friends outside Guildhall. As it is, there is little doubt that Parliament would abolish the Commission if vigorously requested by the Corporation; but then it would certainly take leave to remodel the Corporation. When an institution cannot bear close investigation, "*Quieta non movere*" should be the motto of its friends.

Talking of corporation reform, Mr. Beal—the Anacharsis Clootz of Westminster—has proposed a plan on the French model for sweeping away everything parochial, municipal, and magisterial, making a clean board of every institution, and office, and person connected with local affairs within the bounds of the metropolis, and erecting on the vacancy a model municipal system including elective magistrates. The theory is pretty, and suited for the newspapers of a new colony. The abuses of the present no-system are easily arrayed on paper;

whether a municipality elected by the class who now elect the guardians of the poor in Holborn and Clerkenwell would be an improvement is a question open to discussion, but not likely to be discussed until a good deal of other dirty linen has been washed. The question of compensation for the numerous officers displaced would alone exhaust the genius of an extraordinary Chancellor of the Exchequer. The old corporations, with landed property in possession, found the compensation of hostile officers a difficult question. What would the new municipalities do, with nothing to fall back on but new taxes?

A smart little discussion has been going on in the *Times* between Mr. Kerr, the architect, and Mr. Henry Cole, C.B., on the merits, as an architect, of the late Captain Fowke. Mr. Cole reminded the public that the design of Captain Fowke, *an amateur*, for the building to which it was proposed to remove the Natural History Department of the British Museum, was selected in an open competition, by a jury of eminent architects and amateurs. Mr. Kerr replied that if it was selected by the Committee of Taste, it was rejected by the authorities of the Museum, as perfectly unsuitable for the intended purpose, and that his own design, which the Committee of Taste placed second, was adopted. He should have stopped there, but he imprudently attributed Captain Fowke's success to the expensive elaboration of the drawings submitted to the committee. Mr. Cole retorted that Mr. Kerr owes his success to having, before preparing his designs, ascertained the views of one of the Natural History Department; a crime—if it is a crime—which Mr. Cole would certainly have applauded if committed by his friend, Captain Fowke. We should have thought it merit in an architect to have settled the inside before he gave his imagination play on the outside. When a contractor for Captain Fowkes's Exhibition building was wanted, the competition was nominally open, but the builders who had been consulted by Captain Fowke in every stage of his plans were of course in the best position to make a tender; and, although at first sight the thing looked rather fishy, in reality it was for the advantage of the public. As for the question about the respective merits of the artician and the amateur architect, on which Mr. Cole and Mr. Kerr are so fierce with each other, it reminds one of the tale of the knights and the gold and silver shield. A clever amateur is more likely to hit on a novel and tasteful or useful design than a stupid regularly educated architect, but surely the clever amateur would have been none the worse for a regular education in the art of construction. It is true that, where extraordinary innovation in new materials is called for, an amateur is more likely to be a successful innovator than the regularly educated professional man. Sir Joseph Paxton's genius conceived the idea of the Crystal Palace, an idea that would never have occurred to him if he had been educated as an architect, but it would have remained a very imperfect and probably a tumble-down idea without the assistance of the eminent engineer he consulted and the architects he employed. It is curious to find Mr. Cole sneering at the regular education, which the museum he may be said to have invented, was founded to promote.

Although it was Captain Fowke's great good fortune to be Mr. Cole's friend and coadjutor, there is no doubt that he was a man of very considerable taste and talent for useful design, who did not disdain small things, and quite capable of earning a position as an engineer or an architect without official patronage. Mr. Cole is at present busy with his scheme for the reform of the Royal Academy of Music. As the Hall of Science at South Kensington is to embrace a concert-room, we shall not be surprised to hear of a scheme for transporting the academy from Hanover Square to next door to the Horticultural Gardens, and adding concerts to the attraction of flower shows and picture galleries. Mr. F. C. Chorley wants ten thousand a year from Parliament for a National Academy of Music. We dare say Mr. Cole would undertake the business for five thousand, and thus end his days as patron of all the fine arts, including dancing.

GAS BILLS FOR 1866.

The Bills relating to the supply of gas that have been printed and lodged at the Private Bill Office previous to their introduction into Parliament next session, are even more numerous than those of last year. They comprise 17 Bills for giving further powers to established companies; 16 for the incorporation of companies who have hitherto been carrying on their operations without parliamentary powers; 2 Bills are promoted by private individuals, the owners of gas-works to authorize them to form companies to purchase their works; 8 are promoted by public bodies; there are 9 Bills for the incorporation of new competing companies; and one for the construction of a bridge over which gas-mains are to be carried. The total number of Gas Bills is therefore 53, of which we subjoin the following abstracts, commencing with those of established companies, in alphabetical order.

The Bill of the *Belfast Gaslight Company* is limited in its object to obtaining power to purchase additional land adjoining that they already possess, for which no more money is required.

The *Brighton and Hove General Gas Company* apply for power to extend their limits, and to raise additional capital. The present capital of the company is £100,000, with power to borrow £20,000, and they seek to be authorized to raise £150,000 additional share capital, and £40,000 additional by loan. It is proposed to add the parishes of Old Shoreham and Lancing to the district now supplied by the company. The dividends on the new share capital are to be limited to 7½ per cent. on ordinary shares, and 6 per cent. on preference shares. The Gas-Works Clauses Act and the Companies Clauses Consolidation Act are to be incorporated in the company's Act. The power to purchase land is to be limited to 10 acres. The maximum prices for gas named are 5s. per 1000 feet in New Shoreham, 4s. in the parishes of Brighton and Hove, and in other places 6s. per 1000. The illuminating power of the gas is proposed to be equal to 12 uncased sperm candles; the gas when tested to be consumed with a steatite Argand burner having an external diameter of 1-10th of an inch, and an internal diameter of 0·50 of an inch. The gas is to be so far free from sulphuretted hydrogen as not to discolour ordinary test-paper when exposed for one minute to a current of gas issuing under a pressure of 5 inches of water.

The preamble of the Bill of the *British Gaslight Company, Limited* (Staffordshire Potteries) recites that it is expedient "that further powers should be conferred, and restrictions "placed upon the company;" and the first operating clause limits the price of gas to 3s. 6d. per 1000 feet for 14-candle gas. The clause respecting the illuminating power and the purity of the gas is the same as that in the Bill of the Imperial Company which is subjoined. There are several provisions regarding public lighting. The gas is to be supplied by partial meter indication, one meter being fixed to every twelfth lamp; the price charged for the gas is to be the same as to the largest private consumer; the company are to light, extinguish, and clean the lamps at the charge of 13s. per lamp per annum; the meters are to be provided by the lighting authority and for securing uniformity of consumption, each lamp is to be furnished with "a proper self-acting pressure-regulator, or "other proper regulating apparatus and burners," and the gas supplied to the lamps "shall be permitted to pass unre-"strictedly to and from such regulators." Dr. Letheby's apparatus is named and described as the means of determining the quantity of sulphur in the gas; which may be tested at any hour between three in the afternoon and twelve at night without notice. The company are to make maps of their mains, and to publish yearly accounts, according to a prescribed form, and all disputes between them and the local authority are to be settled by arbitration.

The Canterbury Gaslight and Coke Company apply for power to increase their present capital of £15,000 by the further amount of £20,000, on which 8 per cent. is to be the prescribed dividend, and to borrow £9000. The company are to supply gas to any premises within 200 yards of a main; the expense of the service-pipe, if laid beyond 30 feet from the main, to be paid by the consumer. The maximum price of gas is to be 4s. per 1000 feet if the price of coal does not exceed 20s. per ton, in which case the company may charge 4s. 6d. per 1000 feet. The illuminating power to be 14 candles, and the test of purity to be the same as provided in the Brighton Gas Bill. The company also supply water to Canterbury and the neighbourhood, but the capital employed in that branch of their undertaking is separately named.

The Croydon Commercial Gas and Coke Company apply for power to extend their district into the parishes of Addington, Beddington, Coulsdon, and Sanderstead; to remove the site of their works to a short distance from the town; to add to their present share capital of £40,000 the further amount of £78,000, and to increase their borrowing power by the sum of

£19,500. The prescribed dividend on the new capital is to be 7½ per cent. on ordinary shares, and 6 per cent. on preference shares. The company are to be empowered to purchase by agreement 20 acres of land, and to erect gas-works at Waddon, in the parish of Croydon. The maximum price of 12-candle gas is to be 6s. per 1000 feet, but no test of purity is named. There is a clause relating to the supply of gas to public lamps, but it merely provides that the company shall supply gas "to all public lamps or burners adjoining or "near to any of the mains of the company, upon such terms "and during such hours as shall be settled by agreement "between the company and the Local Board." Three hours notice to be given before testing the illuminating power of the gas.

There are two Bills promoted by three existing companies in Dublin, having for their object the amalgamation of the *Alliance and Dublin Consumers Gas Company* with the *Commercial Gas Company of Ireland, Limited*, and authorizing the amalgamated company to acquire possession of the gas-works and property of the *United General Gas Company* in Dublin. To effect these objects a Bill promoted by the United General Gas Company proposes to separate the interests of that company in Dublin from their undertaking in Limerick; thus forming a distinct company in Dublin with the title of the Hibernian Gaslight Company. The amount of the capital of the United General Company which has been devoted to the works in Dublin is stated to have been £365,000, but the company are willing that the amount so devoted should be deemed £315,000. The Bill proposes to repeal the existing Acts, to dissolve the company, and to redistribute the capital, so as to separate entirely the undertaking in Dublin from that in Limerick. The new company are to be empowered to borrow £75,000, and they undertake to supply 14-candle gas at the maximum price of 4s. 6d. per 1000 feet. The amalgamated company, have an united share capital of £290,000, of which £88,000 has not been paid up, and they seek for power to raise further capital to the extent of £300,000 if they acquire the gas-works of the United General Company. They require power to borrow one-fourth of the amount of the capital raised; and to be authorized to borrow £54,000 on the existing share capital. The illuminating power of the gas from the 1st of January, 1867, is to be 16 candles, and the maximum prices named are to be 4s. 6d. per 1000 feet within the city of Dublin, and the townships of Rathmines, Pembroke, Blackrock, Kingstown, and Dalkey; and in other places 5s. 6d. Power is to be given to the company and to the United General Company to agree for the transfer of the works of the latter to the former.

The *Equitable Gaslight Company* apply for power to increase their present capital of £300,000 by the issue of new shares to the amount of £200,000, the dividends on which are to be limited to 7½ per cent., and to borrow £150,000, of which sum £100,000 may be borrowed at any time after the passing of the Act. It is proposed that all the shares of the company shall be converted in £25 shares; and that the holders of preferential shares shall not be entitled to vote, except with the consent of the company, at the time the shares are issued.

The *Gaslight and Coke Company* (commonly known as the Chartered Company) apply to Parliament to repeal their Acts, Charter, and Bye-Laws, passed in 1810, 1814, 1816, 1819, and 1823, and to be reincorporated with the same title. They require power to add to the present share capital of £900,000, of which £90,000 has not yet been called up, the sum of £300,000 being profits of the company expended on the works, in shares of £16. 13s. 4d. each, which are to be deemed fully paid up, and to be vested in the existing shareholders, share for share. The dividends on the £300,000 of capitalized profits are limited to 5 per cent.; but it is provided that when the company's charge for common gas is less than 4s. per 1000 feet, and for cannel gas less than 5s. 6d., then the prescribed rates of dividend shall be increased £1 per cent. in respect of every 3d. per 1000 feet, by which their ordinary charge is less than those prices. A "contingency fund" is to be set apart out of the divisible profits, the income from which is to be considered profits of the company. The company, who have no mortgage or bond debt, are to be empowered to borrow £400,000. They seek also for power to purchase certain land at Hackney Wick for the erection of gas-works, which must be completed within five years; to lay down mains from those works to the district they supply with gas: and also to purchase other land, not exceeding 100 acres. The meetings of the reincorporated company are to be held in October and April, the qualification of directors is to be £1000 at least in shares; the number of directors to be not more than 12 nor less than 10, and the quorum to be the governor, or deputy-governor, and three others. In the clause respecting the purity of the gas, 5 grains of ammonia and 25 grains of sulphur, in any form, are the maximum quantities tolerated in 100 cubic feet, as tested by Dr. Letheby's apparatus. A clause is introduced for the protection of the sewers of the Metropolitan Board and of other public bodies.

The *Gaslight and Coke Company* are the promoters of another Bill, in conjunction with the *City of London Gaslight and Coke Company*, for the amalgamation of those two undertakings. The preamble of the Bill recites the various Acts by which the companies were incorporated and their powers enlarged; and the share capital of the Chartered Company is stated to be £900,000, and that of the City of London Company to have been, in 1858, £400,000, whereof £300,000, being the old capital, was divided into 10,000 A shares of £20 each, and 10,000 B shares of £10 each, and the company were at that period authorized to raise the additional sum of £100,000 by the creation of 10,000 "new shares" of £10 each, of which 8000 have been issued and fully paid up. The dividends on the B shares were limited to 4 per cent. The Bill provides for the separate payment of the debts of the two companies, and for other matters, before the commencement of the Act, which it is proposed to take effect on the 31st of December, 1866; for the continuance in office of the servants of the two companies until removed; and the continuance in office of the directors until the first ordinary meeting held after the amalgamation takes place, from which time the minimum number of directors is to be nine, and the maximum fifteen. The capital of the united company is to be £1,600,000; the shares of the City Company are to become shares of the amalgamated company, and the capital is to be divided into 160,000 shares of £10, of which the 100,000 B shares of the City Gas Company are not to receive as dividend more than 4 per cent. The company are to be authorized to issue to the proprietors of the companies certificates in exchange for those in existence previously to the commencement of the Act—five of the A shares of the amalgamated company to represent one share of the Chartered Company before amalgamation, two of the A shares to represent one A share in the City Gas Company, and one B in the latter company to represent one B share in the amalgamated company. The borrowing powers of the company may amount to £535,000, including £57,495 before borrowed by the City Company. There is no mention in the Bill of the price of gas nor the illuminating power.

The *Imperial Gaslight and Coke Company* again apply to Parliament for increased powers, but their Bill now printed is very different from that of last session, which was so summarily disposed of in the House of Lords. It is stated that the share capital of the company of £1,300,000 has been fully called up, that they have borrowed the whole sum of £433,000 which they are authorized to raise by loan; and they require power to double their share capital in certain proportions, and to borrow, under specified conditions, the sum of £203,125. The dividends on the new share capital are to be limited to 7½ per cent. The company require to be authorized to purchase 100 acres of land, and to erect gas-works in the parish of Bow, but not within 300 yards of Victoria Park. They also require power to lay down mains to connect the works to be constructed at Bow with the district they supply with gas, The clause reluting to the illuminating power and purity of the gas provides that, "unless prevented by frost, or unavoid-"able cause or accident, or during any necessary repairs, all "the gas supplied by the company shall be of such illumi-"nating power as to produce, at a distance of not less than "1000 yards from the works, from a steatite Argand burner "having an external diameter of 1/10th of an inch and an "internal diameter of 0/48th of an inch, and having 15 holes, "each hole of the diameter of 0/05th of an inch, and with a "7-inch chimney, supported upon an ordinary gallery without "a perforated disc, and consuming 5 cubic feet of gas an "hour, a light equal in intensity to the light produced by 14 "uncased sperm candles." The burner to be provided by the company, and to be similar to models deposited with the clerk of the Vestry of St. Marylebone. The purity test is the same as in the Bills before mentioned, and the gas "shall not

"contain more than 20 grains of sulphur in any form, nor "more than 5 grains of ammonia in 100 cubic feet." The maximum price of gas "shall not, during the period of four "years next after the 30th of June, 1866, exceed the rate of "4s. per 1000 cubic feet." A clause similar to that in the Chartered Company's Bill is introduced for the protection of the sewers of the Metropolitan Board.

The *London Gaslight Company* merely apply for power to raise, by the creation of new shares, the sum of £300,000, and to borrow one-third of that amount. If the shares be issued with preference, the dividends are to be limited to 6 per cent.

The *Newark Gas Company* require power to raise £20,000 additional share capital, and to capitalize £5000 of profits expended on the works. The share capital of the company will then amount to £30,000, with power to borrow £7500. The dividends on the new share capital are not to exceed 7 per cent. The company also require to be authorized to purchase two acres of additional land. The existing Act is to be repealed and the company reincorporated, the same officers to continue until removed. The maximum price of 12-candle gas is to be 5s. 6d. per 1000 feet, and before proceeding to test it six hours notice are required.

In the preamble of the Bill of the *Stourbridge Gas Company* it is stated that by their existing Act they were authorized to raise £12,000 by shares, and to borrow £3000, but that instead of borrowing they raised the money by creating new shares to the same amount. The company now seek to be authorized to raise £12,000 by new shares, and to borrow one-fourth that sum. The holders of preference shares are not to be entitled to vote, unless the company determine otherwise at the time the shares are issued. There is no limitation of dividend on the new shares.

The *Sheffield United Gaslight Company* apply for power to extend the limits of their Act of 1855, to extend their works, and increase their capital. It is proposed to obtain power to raise their present capital of £344,053 by the addition of £350,000, the dividends on the new shares being limited to £8 so long as the price of gas is above 3s. per 1000 feet, after which they may be raised to 10 per cent. It is stated in the preamble that "experience has shown that the increase of the "rate of dividend on the company's capital in proportion to "the decrease of the general charge for gas has worked benefi-"cially for the public." Certain lands in the neighbourhood of Sheffield are named in a schedule which the company wish to acquire for the extension of their works, and they require power also to purchase 50 acres of other land.

The *United General Gaslight Company* promote a second Bill for the purpose of carrying into effect the separation of their Dublin undertaking from that in Limerick, and to vest the latter in a new company. The preamble recites that the sum of £20,250 has been devoted by the United General Company to the works at Limerick, and that sum is to constitute the capital of the separated company, with the addition of £10,000 to be created by the issue of new shares, and with power to borrow £5000. The dividends on the new ordinary shares are limited to 7½ per cent., and on preference shares to 6 per cent. All the books relating to the Limerick undertaking before the passing of the Act are to be in the custody of the Hibernian Company in Dublin. The capital is to be divided into £10 shares, the holding of ten of which to constitute the qualification of a director. The maximum price of 14-candle gas is to be 5s. per 1000 feet, its purity being determined by the ordinary tests, and it is not to contain more than 20 grains of sulphur in any form. Six hours notice are required before testing.

The *Wandsworth and Putney Gaslight and Coke Company* apply for power to extend their limits, to acquire additional lands, to capitalize money expended out of revenue, and to raise more capital. The present share capital is £30,000, and the amount to be capitalized £800; power is also required to raise £70,000 and to borrow £18,000. The dividends on the ordinary shares of the new capital are to be limited to 7½ per cent., and on the preference shares to 6 per cent. The limits of the company's district are to be extended to include the whole of the parish of Putney, Lower Tooting, Upper Tooting, Wimbledon, Merton, and Mitcham, and they require to be authorized to purchase or lease the works of any other company or to sell or lease any of their own works. The Bill seems to have been hastily drawn up, for it contains no enacting clause respecting the money to be capitalized, nor for the purchase of land, and a schedule referred to as specifying the lands to form the site of the gas-works is omitted.

There are sixteen Bills of companies now carrying on their operations who apply for parliamentary powers. All the Bills promoted by them comprise many similar clauses which it is unnecessary to notice separately; such as the incorporation of general Acts, the general powers of the company, the saving of previous rights and liabilities, the officers to continue until removed, the election of directors, &c., &c. The borrowing powers required, when not specially mentioned, amount to one-fourth of the share capital, and the notice to be given before testing the gas is six hours in all cases where the time is not stated.

The *Aldershot Gas and Water Company* require to raise a share capital of £25,000, in £10 shares, and to borrow £8333. The maximum price of gas is to be 5s. per 1000 feet, and its illuminating power 12 candles, a notice of 24 hours to be given before testing. The limits of the company are confined to the parish of Aldershot.

The *Aldershot Gas Consumers Company* include within their limits the parishes of Aldershot, Farnborough, and Cove. The present capital of the company of £5000, in £5 shares, is to be increased to £20,000, in £10 shares, on which no prescribed dividends are named. The maximum price for 12-candle gas is to be 7s. per 1000 feet in Aldershot, and 7s. 6d. in any other place.

The *Banbury Gaslight and Coke Company, Limited*, formed in 1833, with a share capital of £10,000, require to increase it to £30,000, with a limited dividend on the additional £20,000 of 7 per cent. The maximum price of 14-candle gas within one mile of Banbury is to be 5s. per 1000 feet, and beyond that distance 7s.

The *Briton Ferry Gas and Coke Consumers Company, Limited*, was formed in 1860, with a capital of £5000, for lighting Briton Ferry, in Glamorganshire, and the neighbourhood. It is proposed to add £3000 to the capital of the company, and to acquire power to purchase 10 acres of land. The illuminating power of the gas is to be 14 candles, but the price is left blank in the Bill. Twenty-four hours notice are required before testing.

The *Brynmawr Gas Company*, for lighting Llanelly, require a capital of £10,000. The price of 12-candle gas is to be limited to 5s. per 1000 feet. The company to be empowered to make arrangements with neighbouring companies for determining the limits of their respective districts.

The *Childwall Gas Company, Limited*, formed in 1864, apply merely for an Act of Incorporation, no amount of capital being named in their Bill. They seek for power to purchase six acres of land near Liverpool. The price of 14-candle gas is not to exceed 6s. per 1000 feet.

The *Cleethorpes Gas Company, Limited*, have a share capital of £5000, one-half of which has not been called up, and they require to increase it £10,000, in £10 shares. The price of gas is not to exceed 5s. 10d. per 1000 feet, and its illuminating power is to be 14 candles. The land to be held by the company is not to exceed three acres.

The *Colchester Gas Company* were originally established in 1826, and their capital has been increased by several subsequent deeds of settlement, from £10,000 to £20,000, and they apply to have it increased £20,000. The rate of dividend on the new capital is not to exceed 8 per cent., and if issued in preference shares 6 per cent. The quantity of land to be purchased by the company is limited to 10 acres. The illuminating power of the gas is to be 14 candles, and with respect to purity, it shall, "so far as from time to time is reasonably "practicable, be free from sulphuretted hydrogen, ammonia, "and other deleterious matters." The maximum price named is 5s. per 1000 feet.

The *East Barnet Gas and Water Company* apply to be incorporated with a capital of £50,000, in £10 shares, with power to divide the shares into half shares, of which one may be called "preferred half share," and the other "deferred half "share." On the preferred half the dividend is to be limited to 6 per cent., and on the deferred half the amount of the remaining portion of the dividend is not to be greater than would have been paid to the entire share had it not been divided. The quantity of land to be purchased not to exceed 10 acres. The maximum price of gas is fixed at 7s. per 1000

feet, and its illuminating power at 12 candles. The company require to be authorized to purchase the works of other companies within their limits.

The *Frome Selwood Gas and Coke Company* were established in 1832, and their present capital amounts to £12,000. The additional share capital required is £13,000, with a limited dividend of 7 per cent. The maximum price of 12-candle gas is to be 5s. per 1000 feet.

A new company, the *Grange and Cartmel District Gas and Water Company*, apply to be incorporated with a capital of £20,000, in £10 shares, one half of which are to be called "original capital," and the other half "additional capital." The price of 14-candle gas is not to exceed 8s. per 1000 feet.

The *Hornsey Gas Company* were formed in 1857 with a capital of £20,000, which they require power to increase to £50,000; the dividend on the new capital being limited to 7½ per cent. If preference be attached to the shares, they are not to be entitled to more than 6 per cent. Any sums accruing by way of premium on the sale of shares is to be considered as profits of the company. The quantity of land to be purchased and held by the company is not to exceed five acres. The maximum price named for 14-candle gas is 6s. per 1000 feet. A notice of 24 hours is required before the gas is tested.

The *Longton Gas Company, Limited*, established in 1858, with a capital of £12,310, in £5 shares, seek for power to extend their limits to Stoke-upon-Trent and the adjoining parish, with an increased capital to the amount of £40,000. There is no limitation of the dividends on the new capital. The company is to be empowered to purchase five acres of land. The price of 12-candle gas within a radius of one mile from the works of the company is not to exceed 3s. 6d. per 1000 feet, and 4s. beyond that distance; "provided always "that when the price of coal at the works of the company "shall exceed 10s. 6d. per ton, an extra price of 6d. per 1000 "feet may be charged by the company."

The *Ryde Gas and Coke Company* were established in the year 1847. Their present capital consists of £15,000, in £10 shares; they have applied out of profits to the extension of their works £3750, which they want to capitalize; and the Act applied for is to grant power to the company to raise the total capital to £50,000. The prescribed dividends are to be 22s. 6d. on every share of £12. 10s. of the original capital, including the capitalized profits, and 7 per cent. on the additional capital. The quantity of land to be purchased is not to exceed eight acres, the powers for the compulsory purchase being limited to three years. The price of 12-candle gas is limited to 5s. 6d. per 1000. The public lamps are to be supplied by meter or by contract, at the option of the lighting authority, and the price is to be calculated or fixed at a rate not exceeding the lowest price charged to any private consumer.

The *Slough Gas and Coke Company* apply for power to increase their present capital of £5000 to £20,000, and to purchase 10 acres of land. The maximum price of 14-candle gas is to be 6s. per 1000 feet; 24 hours notice being required before testing.

The *Southgate and Colney Hatch Gaslight and Coke Company, Limited*, established in 1858, with a capital of £15,000, apply to be dissolved and reincorporated. In addition to their present capital, they require power to raise a further sum, in the first instance, of £25,000, and afterwards an additional £25,000, making a total capital of £65,000. The dividends on the ordinary shares of the new capital are limited to 10 per cent., and on preference shares to 6 per cent. They also apply for power to borrow £20,000. The limitation to the quantity of land to be purchased is six acres. The illuminating power of the gas is to be 14 candles, and the maximum price 6s. per 1000 feet.

Two Bills—viz., the *Ventnor Gas and Water* and the *Walker and Wallsend Union Gas Bill*—are promoted by private individuals who have hitherto possessed the gas-works in those places, for the purpose of disposing of them to companies. In the Ventnor Bill, the proposed capital of the company is to be £30,000; and in consequence of the high price of coals at Ventnor, the cost of landing them, the number of detached residences, and "the corrosive nature of tbe soil," recited in the preamble as occasioning increased cost in manufacture and distribution, the maximum price for 12-candle gas is fixed as high as 6s. 8d. per 1000 feet. The capital of the Walker and Wallsend Union Gas Company is to be £25,000. The maximum price of 12-candle gas is to be 5s. per 1000 feet. In a schedule to the Bill, there is a copy of the agreement made between Mr. Potter and the Walker and St. Anthony's Gaslight Company, Limited, for the sale and purchase of the works.

Eight of the Bills relating to the supply of gas are promoted by Municipal Corporations and Local Boards; in some instances for the purchase of the works of the existing companies, and in others for power to raise more money to carry on the works they already possess.

The *Aberavon Local Board* apply for power to purchase the works of the Aberavon Gas and Coke Consumers Company, Limited, established in 1857. It is provided by the 8th clause of the Bill that if the corporation shall on or before the 1st of September, 1866, give notice to the gas company of their intention to purchase the gas-works, the company shall be bound to sell at such price as may be agreed on, or determined by arbitration. For the purpose of carrying on the works the corporation may purchase five acres of land. The price to be charged for gas is limited to 6s. per 1000 feet, and its illuminating power is not to be less than 14 candles. On a requisition from twenty consumers the gas may be tested after a notice of 24 hours, and if found not equal to the prescribed standard the corporation are to forfeit a sum not exceeding £20. The corporation require to borrow for the purposes of the proposed Act £5000, in addition to moneys they are authorized to borrow under the Public Health Act. The revenue of the gas undertaking—after payment of all expenses attending it, and after setting aside from the 1st of January, 1868, such sums for a sinking-fund as will pay off the money borrowed in 30 years—is to be applied to the improvement of the town.

In the *Bray Improvement Bill* power to purchase the works of the Bray Gas Company, is introduced incidentally, and the matter is alluded to only in a single clause, which provides that the commissioners may at any time after the passing of the Act purchase or take on lease by agreement the existing gas-works at Bray; all the profits derived from the undertaking to be applied to the improvement of the town.

The *Bury Improvement Commissioners* purchased the gas-works from the Bury Gas Company in 1857, and they now apply to Parliament for power to raise a further sum of money for the redemption of the remaining portion of the annuities granted to the shareholders on the purchase of their undertaking, and also to enable the commissioners to carry on the works. For these purposes they require to borrow on the security of the undertaking the sum of £50,000, and to create debenture stock to any amount not exceeding £113,200, to which may be attached fixed and perpetual preferential interest of 5 per cent. With this debenture stock it is proposed to pay off £8200 mortgage debt of the gas company, which the commissioners reborrowed; to pay off £13,250 borrowed for the redemption of annuities; to pay off £10,000 borrowed by the commissioners for the purposes of the gas-works; and to raise in that way the money authorised to be borrowed.

The *Corporation of Congleton* are the promoters of a Bill for giving them power to purchase the works of the existing gas company, an agreement to that effect having been made with the company, which is set forth in the schedule. It appears from that agreement that the consideration for the purchase is to be £12,500, and that it is to be completed on the 22nd of August, 1866; but the works are at present leased to a contractor. The illuminating power of the gas, after the expiration of the existing lease, is to be 14 candles, and the maximum price 5s. per 1000 feet. The gas may be tested on the requisition of five consumers without any notice. A sinking-fund is to be formed from the profits of the gas undertaking to pay off the money borrowed in 35 years.

The *Nelson Local Board*, in the county of Lancaster, have entered into an agreement with the Nelson Gas Company for the purchase of their works for the sum of £8387. 10s., the purchase to be completed within three months after the Act for which the Local Board now apply has been passed; but the board are to be entitled to the profits of the undertaking from the 1st of April, 1865, on paying to the directors 5s. weekly for their loss of time and to the shareholders 7½ per cent. interest on £5925, the amount of the paid-up capital. The price of gas within the district is not to exceed 5s. 6d. per 1000 feet, and without the district 6s. The illuminating

power is to be not less than 14 candles, and it may be tested on the requisition of five consumers on giving six hours notice.

The *Corporation of Stockton*, who purchased the gas-works from the Stockton Gas Company in 1857, apply for power to borrow £28,000 for the purpose of increasing and extending their supply of gas.

In the *Stourbridge Improvement Bill* a clause is introduced for giving power to the commissioners, if they purchase the undertaking of the Stourbride Gas Company, under the Stourbridge Gas Act, 1855, to borrow money for the purpose.

There are nine Bills for the incorporation of competing companies, including that of the Corporation of London. They all contain the usual clauses for incorporating general Acts; for giving the general powers exercised by gas companies; for compelling the companies to supply gas; and in most cases the incoming tenant is exonerated from the debts due by the former tenant. In all the Bills in which the difference is not specially named, the borrowing powers are to be equal to one-fourth the capital of the companies, and six hours notice is required before testing the gas.

A company for the supply of gas to the districts and places in the vicinity of Brighton and within the town apply for an Act of Incorpation, with the title of the *Aldrington, Hove, and Brighton Gas Company*. The proposed capital is £75,000, in £10 shares, with power to borrow £24,800, and the promoters require to be authorized to purchase 23 acres of land. The price of 14-candle gas is not to exceed 3s. 6d. per 1000 feet.

The preamble of the Bill of the *Chatham, Rochester, Frindsbury, Strood, Brompton, Gillingham, and Rainham Consumers Gaslight and Coke Company* alleges that those places are either not lighted with gas or are insufficiently lighted. It is proposed to erect new gas-works at Gillingham, on a plot of land consisting of six acres, which quantity of land may be increased to 13 acres. The capital of the company is to be £80,000, in £10 shares, with conditional power to increase it to £100,000, and to borrow £32,900. The number of directors is not to be less than 9 nor greater than 15, and they are to be authorized to appoint one of their number as managing director. The price of 14-candle gas is not to exceed 4s. 6d. per 1000 feet, and the gas is to be tested for purity with Dr. Letheby's sulphur test; the quantity of sulphur allowed not to exceed 20 grains in 100 cubic feet. The testing is not to take place nearer than 1000 yards to the works, and no notice need be given. The gas supplied to the public lamps is to be charged at the lowest price paid by any consumer.

The *City of London Corporation Gas Bill*, in a long preamble, alleges that the existing arrangements for the supply of gas to the City and legislative provisions have prevented it from being so abundant, or of so good a quality, or so low a price "as circumstances for the time being admit;" that it is "of "great importance that the public authorities in the City "should have the entire control of the arrangements for the "public lighting; and that the corporation are desirous of "being authorized to supply gas for public and private con-"sumption in the City, and it would be of great local and "public advantage if powers were conferred on them for that "purpose." In the enacting clauses, it is proposed to authorize the corporation to take certain land in the parish of West Ham, on which to construct gas-works, and to purchase such other land as they may think requisite, not exceeding 20 acres. The illuminating power of the gas to be suppled by the corporation, to be equal to 18 sperm candles, tested with Sugg's steatite burner, which is minutely described; and the gas is to be of such purity as not to discolour properly prepared test-paper when exposed to a current of gas issuing for one minute from an orifice one-fourth of an inch in diameter, at a pressure of not less than half an inch of water. The quantity of sulphur in the gas tested by Dr. Letheby's sulphur test, is not to exceed 16 grains in 100 cubic feet. The corporation are to appoint a chemical examiner of the gas, to examine its illuminating power, purity, and pressure, and any consumer on the payment of one shilling may receive a report from the examiner. The maximum price of the gas is to be 3s. per 1000 feet. The corporation are to apply the money received from the gas undertaking, after paying the expenses and interest on the moneys borrowed, in the formation of a sinking-fund, which in the period of 40 years from 1870, will be sufficient to pay off the moneys borrowed by the corporation for the gas undertaking; and lastly in improving and extending the gas-works and mains, and "widening the "streets of the City and the improvement thereof." The amount which the corporation require to be authorized to borrow for the gas undertaking is £500,000. It is proposed that the manufacture and supply of gas shall be superintended by a committee to be appointed by the corporation. One of the last clauses in the Bill provides that nothing in the Metropolis Gas Act, 1860, shall apply to the corporation.

A *Colchester Consumers Company*, competing with the existing gas company, apply for parliamentary powers. The proposed capital is £25,000, in £5 shares, and the quantity of land to be purchased 10 acres. The maximum price of the gas to be 4s. 6d. per 1000 feet, and the illuminating power 14 candles; a notice of 24 hours being required before testing.

The *Flintshire Oil and Cannel Company, Limited*, propose to light the City of Chester and other places in that county and in Flintshire, with "paraffin light," which is stated in the preamble of their Bill to be at present a waste product of their manufacture. The Bill is in most respects similar to an ordinary gas Bill, and the powers required are the same, though the word gas does not appear in any of the clauses. The illuminating power of the paraffin light is to be equal to 16 sperm candles; and the price 3s. 6d. per 1000 feet. There is no mention of capital in the Bill, but it is stated that the paraffin light accounts are to be kept distinct from the other accounts of the company.

The object of the *London Railway Gas Company*, to which we recently alluded, is not as then stated to light railway carriages, but the metropolitan stations, termini, and premises of the railways south of London, which the preamble of the Bill alleges "are at present insufficiently supplied with gas "at needlessly high prices." The limits named are very extensive, including all the parishes south of the Thames, and nearly all the districts of the metropolitan gas companies. The proposed capital is £100,000 in £10 shares with power to borrow £33,000. It is a peculiar feature of the Bill that though the object of the company is stated to be to afford a better supply of gas at lower prices, no mention is made either of the quality or price of the gas to be supplied.

The *Neath New Gas Company*, formed in the present year with a nominal capital of £10,000, apply to Parliament merely to be incorporated; the capital remaining the same. The proposed maximum price of 14-candle gas is 5s. per 1000 feet.

There is a Bill for incorporating a competing gas company to supply *Slough, Datchet, and the neighbourhood*, who require only a capital of £8900, though the district is extensive. The quantity of land proposed to be purchased is eight acres, and the maximum price of 14-candle gas 6s. per 1000 feet.

A consumers company, with a proposed capital of £10,000, apply for parliamentary powers to enable them to light *Worksop* and part of the parish of *Shireoaks*, in competition with the Worksop Gas Company. The proposed illuminating power of the gas is 14 candles, and the price for the first two years is not to exceed 4s. per 1000 feet, and after that period 3s. 9d.

There is a bill relating indirectly to the supply of gas—the *Redheugh Bridge and Approaches Bill*—which does not belong to any of the foregoing classes. The old bridge at Newcastle is about to be removed and reconstructed as a swing bridge, to allow the passage of vessels, and the proposed new bridge is to be used as a substitute for the gas and water mains of the Newcastle and Gateshead Gas Company and of the Newcastle and Gateshead Water Company. The object of the Bill, so far as those companies are concerned, is to empower them to subscribe £5000 each towards its construction, and to raise money, by the creation of new shares, for that purpose, and for laying their mains and pipes in the new direction.

We have not been able to obtain a copy of Bill lodged for amending the Metropolis Gas Act of 1860, and must therefore defer our notice of it till our next issue.

Circular to Gas Companies.

THE trial of the action, to which we alluded in our last, brought against the Chartered Gas Company to recover damages caused by the fire at Saville House, Leicester Square, is fully reported in our present number. It is a case of great importance to gas companies, as it tends to determine the extent to which they are liable for consequential damage. The plaintiffs, who were substantially the fire

offices, did not allege that the fire had been occasioned by any immediate act of the servants of the gas company. It was admitted that when they removed the meter from the premises of the occupant of part of Saville House, they properly turned off the gas and left everything quite safe. They stated, indeed, that they also took out the key and plugged up the end of the pipe with a cork, though that was denied by the plaintiffs witnesses. Whether they did so or not, however, would have had no influence on the result. After they had gone from the premises, a person in the employ of the nominal plaintiff turned the tap, thus causing an escape of gas, and another man went to the place with a light, and the explosion occurred. There was no question about the fact that the servants of the occupier of the premises were the immediate agents in causing the fire; but it was contended that if the men who removed the meter had taken greater precautions, the accident would not have happened, though nothing that could be properly called negligence was attributed to the men in the employ of the Chartered Gas Company. It was otherwise in the case of the Wood Street fire, where negligence or want of reasonable precaution on the part of their servants was admitted by the Great Central Company. The remarks of Baron Pollock, before whom the case was tried, were strongly against the imputation of constructive negligence endeavoured to be established by the plaintiffs. The pipe, he said, had been left in a state of safety if no one had interfered with it, the immediate cause of the fire having been the turning of the tap and the subsequent ignition of the gas by the servants of the plainliff; and his lordship said that the maxim of the English law, which looks to the immediate cause of the injury, led him to limit the responsibility of all persons alleged to be guilty of negligence to consequences which may be fairly and properly anticipated and foreseen, and not extend it to those which arise out of the folly of other people. He commented strongly on the attempt of the insurance companies to make one person responsible for the negligence of another, because they had insured the tenant against the consequences of his own negligence and could not render him liable. The jury expressed their unanimous opinion that there was no negligence on the part of the servants of the gas company; and the counsel for the plaintiff, after combating pertinaciously against the opinion of the judge and of the jury—in which the audience in the court, somewhat irregularly, expressed their concurrence by loud applause—at length submitted to be nonsuited.

The Bill promoted by the Corporation of London to authorize them to erect gas-works and supply gas, is one of the most monstrous propositions ever submitted for the sanction of Parliament. If a body of capitalists were willing to make the attempt to supply the City with 18-candle gas for 3s. per 1000 feet, they would at least show their confidence in the scheme by sinking their own money in its support, and they might injure no one but themselves, for it would soon fall to the ground; but for a corporate body of trustees to enter into such a speculation with the funds or credit of their constituents, without a reasonable chance of success, and with the almost certain prospect of loss, is, to say the least, a reckless tampering with the property of others with which they are placed in charge. A project for providing the necessaries of life at less than cost price out of a public fund is a near approach to communism, and the same principle might be applied with equal propriety to the supply of bread or meat, or of any other article of general consumption. The Bill contains no clauses giving power to the Corporation to purchase the gas-works or mains of the existing companies; therefore supposing it were to pass, and were put in operation, there would be severe competition with the companies who now supply the City with gas, each one charging less than cost price, and so long as gas continued to be supplied on that condition there would be a spoliation of the property embarked in those undertakings. In every case in which municipal bodies have been empowered to supply gas, they have either agreed for the purchase of the existing works with the proprietors, or they have acquired or purchased the works at a valuation before commencing the supply themselves. That was the case in Manchester, Salford, Stockport, Rochdale, Halifax, Birkenhead, Burnley, Bury, Carlisle, Macclesfield, Oldham, Stockton, and other places where the local authorities have obtained power to supply gas, and we cannot for an instant doubt that the City of London will form no exception to the long list of precedents established by previous legislation. Whenever it has happened that competition in the supply of gas has taken place between local authorities and private enterprise, the latter have succeeded in maintaining its ground better than the municipal body, of which the present woful condition of the gas undertaking of the Limerick Corporation affords a warning example. What the value of the "City lands" may be, over and above their incumbrances, we have no means of estimating, but if £500,000 can be borrowed on that security numberless means might be found of employing the money beneficially and profitably, instead of recklessly sinking half a million sterling in unprofitable gas-works. As to the "gas rents and "rates" proposed to be levied under the Act, if ever obtained, capitalists would scrutinize such security very closely, and they might come to the conclusion that it would be worthless. That it certainly would be so long as the Corporation had not the monopoly of the supply, which they could only obtain by buying up the existing companies; and after they had done so they would see the utter impracticability of selling 18-candle gas for 3s. per 1000 feet and gaining any profit by the undertaking after paying interest on the money borrowed to effect the purchase. If "the widening of the streets of the City"—towards which object the Bill states those prospective profits are to be applied—be not accomplished by other means, the citizens will have to endure their narrow thoroughfares till the advent of the millennium.

A case involving the right of a gas company to cut off the supply of gas when the gas-rent has not been paid, recently came before the County Court at Bacup. The Rossendale Gas Company had supplied gas to premises where they had reason to believe the business of two brothers, who were in partnership, was carried on. One of the brothers left the town, leaving unpaid a small amount due for gas. After his departure the other brother occupied the house, but he refused to pay the gas account, on the ground that the business had not been carried on in the house, where his partner had resided. He paid for the gas consumed by himself after having occupied the premises, but the gas company believing that the business of the firm had been carried on there, insisted on being paid the arrears, and as the demand was refused, they cut off the supply after having continued it for a year. The judge of the county court decided against the company on the three points raised—viz., that the plaintiff was a joint contributor; that it was a partnership debt; and that the company were not bound to furnish a supply of gas. The circumstances were such as to induce the company to believe that they had a just claim against the plaintiff, and that he was trying to defraud them, and they did not cut off the gas because he refused to pay the arrears of the previous tenant, as had been alleged.

A prospectus has been just issued of the Gas-Engine Company, Limited, with a capital of £100,000, for the purpose of introducing into England and the colonies Lenoir's gas-engine, the peculiar action and advantages of which we have before described. The motive power is obtained by the admission of a mixture of coal gas and atmospheric air into the cylinder of the engine, where the explosive compound is ignited by means of electricity with perfect safety. The action is rapid and steady, and it is really a beautiful as well as highly ingenious application of gas; the use of which for such a purpose, generally in the daytime, must recommend the engine to all gas companies. The cost is less than that of a steam-engine and boiler of equal power, and the expense of working is comparatively small, as stokers and engine drivers are disdensed with, the machine being set in motion or stopped by merely opening or closing the gas-tap, when it immediately becomes self-acting. Several hundreds of the engines are now in action in Paris doing all sorts of work, from the making of bread to lifting the materials for building palaces, and their convenience and utility are beginning to be appreciated more fully in this country.

The "Towns Protection Agency," concocted about two years ago under the auspices of Mr. Samuel Hughes, is threatened with opposition. The prospectus of an "Associa-"tion of Towns," with which we have been favoured, holds forth advantages to Municipal Corporations and Local Boards which they must be blind indeed to their own interests not to appreciate, and in the presence of which the Towns Protection Agency must hide its diminished head. There are general and special objects to be attained by joining the association, which are represented to be of the most important character, including, among them, the supervision of the powers of gas com-

panies, the prices charged, and the illuminating power of gas. Of course, all these important advantages cannot be had for nothing, and we find accordingly that a subscription is required, and that the committee of the association will kindly, "if so "desired, conduct, through parliamentary agents, and upon "moderate terms, all such proceedings in Parliament as may "be necessary." To add to the convenience of members of the Association, a club is to be connected with it, where they may attend consultations, transact business, and dine and go to bed. The Towns Protection Agency must surely have been napping to let this opposition protection society thus go ahead.

As we purpose reprinting, in our next number, the share lists of gas and water companies, we earnestly request the assistance of our readers in rendering them as correct and complete as possible, by their returning us, on or before January the 4th next, the slips issued with our present number, so as to enable us to rectify any errors and fill up the omissions of the list published on July the 11th last; and that special advice may be forwarded to us of any changes that may have taken place in the paid-up capitals, dividends, or value of shares, of which notice has not already been transmitted to us. Attention to these is the more urged as numerous corrections reached us after the publication of the last lists, which would have been duly made had they been sent in sufficient time.

Correspondence.

SUGGESTION FOR PREVENTING THE ACCIDENTAL PASSAGE OF FOUL GAS INTO SUPPLY MAINS.

SIR,—Nearly every gas company has experienced at some time the annoyance and trouble occasioned by foul gas passing into the gasholders, either through defects in the valves of the purifiers, or from the carelessness of the workmen, and once this gas is in the holders, it is difficult and at times impossible to prevent it passing into the district. To remedy this evil, I have recommended the introduction of a large purifier between the gasholders and the governors, to be always charged with oxide; and this system has been found so useful on various occasions, that I think it should be more generally adopted; care must be taken that the layer of oxide in the purifier should not cause any practical decrease of pressure.

W. H. STEPHENSON.

London, 25, Poultry, Dec. 22, 1865.

Register of New Patents.

APPLICATIONS FOR LETTERS PATENT.

3153.—PIARRON DE MONDESIR, engineer in the High Roads Imperial Body, PAUL LEHAITRE, C.E., and AUGUSTIN JULIENNE, engineer in mechanics, all of 60, Boulevart de Strasbourg, Paris, France, for "*Applying the compression of air for ventilating purposes, and the compression of any gas for hurrying along elastic fluids in conveying-pipes.*" Dec. 8, 1865.

3214.—ALFRED VINCENT NEWTON, of 66, Chancery Lane, London, mechanical draughtsman, for "*An improved construction of tool for cutting tubes.*" A communication. Dec. 12, 1865.

3248.—THOMAS PARKER, of 42, St. Mary Axe, London, clerk to Messrs. C. A. Pellas and Company, of the same place, merchants, for "*Producing a light applicable to photographic purposes, to lighthouses, and to other illuminations.*" A communication. Dec. 15, 1865.

3261.—SAMUEL WHITEHOUSE, the elder, SAMUEL WHITEHOUSE, the younger, JEREMIAH WHITEHOUSE, and WILLIAM WHITEHOUSE, all of Dudley, Worcestershire, engineers, for "*Certain improvements in the means of collecting waste gases arising from blast-furnaces.*" Dec. 18, 1865.

3264.—JOSEPH HARCOURT, of Birmingham, Warwickshire, lacquer manufacturer, for "*A new process of lacquering and finishing metal goods, such as gas-fittings and other like articles, usually finished by bronzing and lacquering.*" Dec. 18, 1865.

3268.—HENRY PLANCK, of Manchester, Lancashire, dentist, for "*Improvements in apparatus for regulating heat obtained by the combustion of gas.*" Dec. 18, 1865.

GRANTS OF PROVISIONAL PROTECTION.

3036.—JOHN PHILLIPS BARAGWANATH, of 153, Upper Thames Street, London, engineer, for "*A combined adjustable spanner tube-cutter and pipe-wrench.*" A communication. Nov. 27, 1865.

3088.—LONGDON M'MURDO ROGERS, of Bouverie Street, London, merchant, for "*Improved means of preventing water-pipes from bursting.*" A communication. Dec. 1, 1865.

3089.—WILLIAM JOHNSTON, of Glasgow, Lanark, N.B., lamp manufacturer, for "*Improvements in lamps, lanterns, and gas-fittings.*" Dec. 2, 1865.

3099.—THOMAS BELL, of Plaistow, Essex, for "*Improvements in treating the oxide of iron residues of gas, purifying in order principally to extract sulphur therefrom.*" Dec. 2, 1865.

3101.—THOMAS NEWTON BENNIE, of Gowan, Lanark, engineer, for "*Improvements in apparatus for distilling oils and condensing oily vapours.*" Dec. 2, 1865.

3117.—PHILIP ALBERT MUNTZ, of Keresley, near Coventry, Warwickshire, gentleman, for "*Improvements in the manufacture of metal tubes.*" Dec. 5, 1865.

NOTICES TO PROCEED.

1996.—JAMES M'EWAN, engineer, and WILLIAM NEILSON, builder, both of Glasgow, Lanark, N.B., for "*Improvements in the raising, lifting, or drawing and forcing of water and other liquids, and in the apparatus and means employed therefor.*" Aug. 2, 1865.

2043.—ADRIENNE ANASTASIE FOUBERT, of St. Hellier's, Jersey, one of the Channel Islands, for "*Improvements in apparatus for regulating the passage or flow of steam, water, and other fluids.*" Aug. 7, 1865.

2372.—WILLIAM ESSON, of Ness House, Cheltenham, Gloucestershire, for "*Improvements in the construction of gas-meters.*" Sept. 16, 1865.

2567.—RICHARD ARCHIBALD BROOMAN, of 166, Fleet Street, London, for "*Improvements in rotary engines and pumps.*" A communication. Oct. 6, 1865.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £50 BEFORE THE EXPIRATION OF THE THIRD YEAR.

3291.—JOHN HILLIAR, "*Improvements in ventilating and in the exclusion of dust or draught, insects or other animals, from apartments, carriages, or other confined spaces.*" Dec. 8, 1862.

PATENTS WHICH HAVE BECOME VOID

BY REASON OF THE NON-PAYMENT OF THE ADDITIONAL STAMP DUTY OF £100 BEFORE THE EXPIRATION OF THE SEVENTH YEAR.

2829.—HENRY WILSON, "*Improvements in the construction of pumps.*" Dec. 9, 1858.

NOTICE OF APPLICATION FOR PROLONGATION OF PATENT.

JOHN WEEMS, of Johnstone, Renfrewshire, N.B., tinsmith, for "*Improvements in the manufacture or production of metallic pipes and sheets.*" Patent dated Nov. 11, 1852. Any person desirous of being heard in opposition to the prayer of the said petition, must enter a caveat to that effect in the Privy Council Office, on or before the said 8th day of January, 1866.

Legal Intelligence.

ROLLS COURT.

THURSDAY, 16TH NOVEMBER.

(*Before the* MASTER OF THE ROLLS.)

GOLDSMID *v.* THE TUNBRIDGE WELLS IMPROVEMENT COMMISSIONERS.

Mr. ROLT, Q.C., Mr. BAGGALLY, Q.C., and Mr. RENSHAW, appeared for the plaintiff; Mr. SELWYN, Q.C., and Mr. J. PEARSON, for the defendants.

The plaintiff in this suit was the proprietor of a mansion, park, and estate, called Somerhill, in the parishes of Tunbridge and Tudeley, near the town of Tunbridge Wells. His case was that an ancient brook or stream, called the Calverley Brook, which had from time immemorial flowed from Tunbridge Wells into and through the estate of Somerhill, had become fouled by the discharge into it, by the defendant's works, of the sewage of a portion of the town of Tunbridge Wells, and which it was considered would eventually become a great nuisance to the estate, and especially to the park through which the stream passed. The stream or brook in question took its rise in certain springs in the vicinity of Tunbridge Wells. It flowed thence to a park called Colebrook Park; and after passing through a lake there, which it partly filled with water, it entered the Somerhill estate at about two miles from Somerhill. It then traversed that estate (except for a small distance) for nearly two miles. It passed through the park of Somerhill, and through an ornamental lake in it of about twelve acres in extent. Emerging from the lake, the stream continued its course through the Somerhill estate, till it reached a mill on the borders of it belonging to the plaintiff, called the Priory Mill, which it supplied with water. From thence the stream passed through other lands than those of the plaintiff, and eventually emptied itself into the Medway. The lake in Somerhill Park was used for boating, and supplied rough ice for the consumption of the mansion-house. It had also been a drinking place for cattle grazing in the park, but was not, like the stream, an ancient lake. The Calverley springs, from which the water of the stream was at its origin supplied, existed on lands belonging to a Mr. Ward. By the 5 & 6 Will. IV., c. 72, he was empowered to establish works at the springs for supplying the town of Tunbridge Wells with water from them. The effect of the operation of those works was very considerably to diminish the supply of water to the brook. By the 9 & 10 Vict., c. 349, commissioners were appointed, and a system of drainage was established for conveying the sewage of a portion of the town of Tunbridge Wells into the brook. In or about 1857 that part of the brook was arched over and converted into a main sewer, by the commissioners, for receiving the outfall of the drains of that part of the town. It was stated that there were no fewer than 16,000 houses there, and that the number was increasing. It appeared from a plan attached to the plaintiff's bill in the suit (the accuracy of which plan was not disputed), that the owner of Colebrook Park had made a deviating or artificial stream from the brook in question through his property for manuring purposes. While those purposes were being carried out the brook was in a purer condition; but they were merely temporary, and when discontinued the former impure state of the brook again arose. The defendants commenced their operations soon after they had obtained their local Act, viz., in 1845. It was in the course of those operations that they, by allowing the sewage matter to be discharged into the Calverley stream from a sewer situated close to the Calverley water-works, a few miles from the borders of the Somerhill estate, but within the boundary of the commissioners, had fouled the stream in the manner complained of by the plaintiff. The plaintiff first discovered that the water in the lake in his park, and

also that in the stream supplying it, was seriously injured by the drainage operations of the defendants, in 1860. Some correspondence then took place between the solicitors and agents of the respective parties, with the view, so far as the plaintiff was concerned, of putting a stop to what he considered a very serious injury to his property, and the health and comfort of himself, his family, and of all those who were in the neighbourhood of the stream, and in the habit of resorting to it for their domestic or other purposes. The bill in the suit set out at great length various sections of the before-mentioned Acts of Parliament, and several of the letters which passed between the parties. It stated that the plaintiff had applied to the defendants so to conduct their works as not to injure his property; and in particular it alleged, that the commissioners refused to stop the discharge of the sewage and other offensive matters from the town of Tunbridge Wells into the Calverly Brook, pretending that the outfall of the drainage of the town had flowed in the same direction from time immemorial. The plaintiff, on the other hand, insisted that, in consequence of the increase of the town and the population thereof, and of the more improved system of drainage adopted in the said town, or otherwise, the drainage flowing from it into the brook had become loaded with feculent and offensive matters, whereby the water of the brook and of the plaintiff's lake and mill-stream respectively, had now become fouled and contaminated, and wholly unfit for drinking purposes. He also alleged, and a great deal of evidence was adduced by him to prove, that before such contamination as aforesaid the water of the Calverley Brook, and of his mill stream respectively, was pure and wholesome and fit for drinking and other domestic purposes. The bill also stated that the injury caused to the plaintiff's water by the sewage of the town of Tunbridge Wells had been gradually increasing for the last three or four years, and that such injury would be greatly increased as well by the continuance of the emptying of the present sewage into the Calverley Brook as by the increased quantity to be so emptied as the town of Tunbridge Wells increased. The bill then prayed for an injunction to restrain the defendants from causing or permitting the sewage and other offensive matters draining from the said town of Tunbridge Wells, to be discharged or flow into the brook or stream called Calverley Brook, or to pollute the water of the plaintiff's said lake or piece of water and mill-stream respectively, or to injure the health of, or otherwise injuriously affect, the plaintiff, his family, tenants, servants, and workmen resident or employed on his said Somerhill mansion, park, mill, and estate respectively; and for an order that the defendants might pay the costs of the suit. The defendants had filed some affidavits in opposition to the case made by the plaintiff, from which it appeared that they did not deny, as a matter of fact, that the Calverley Brook was fouled, but insisted that the fouling of it arose from causes other than those adduced by the plaintiff. The nature and effect of the evidence on both sides, and of the arguments in the case connected therewith, will sufficiently appear from a judgment of the Master of the Rolls *infrà*.

FRIDAY, NOVEMBER 24.

The MASTER OF THE ROLLS, in giving judgment, said: The evidence in this case establishes the fact that the sewage water which flows from Tunbridge Wells into the brook that runs through the plaintiff's land injures both the brook and his land; that it has done so for a very long time; that the injury has during that time increased; that it is from time to time increasing; and that the construction of fresh houses at Tunbridge Wells, of which there is also evidence, will materially increase the mischief complained of. I had some little difficulty in keeping distinct those portions of the evidence which relate to the plaintiff's land and those which affect his lake. But the distinction is an important one, because it appears that the brook in question runs through the lands of the plaintiff for about two miles and a half; it enters his ground a little below a lodge in Colebrook Park; passes through a lake in the plaintiff's park, and leaves it under a viaduct near the railway. It then runs on past a farm called Brook Farm; and after traversing the land of that place it re-enters the plaintiff's grounds near to a spot where the South-Eastern Railway have constructed a bridge over the brook. The evidence also shows that some sewage has flowed into the brook for several years, but that twenty years ago the water in the brook was fit to drink; that it was available for domestic purposes; and that it was customary so to use it, both on the plaintiff's land and at Brook Farm. Those facts are, I think, conclusively established by the evidence, though certainly the precise time is not so clearly proved. I will, however, take it as established that, ten years ago, the water was undoubtedly fit for domestic purposes, and that it probably was so before that time. Then several witnesses proved the present state of the brook, and they say that the water of the brook, where it leaves the mouth of the sewer, is impure; that it continues in that state some little way further, but it is deviated from the main stream of the brook; that during the course of that deviation it is somewhat purified; and that that deviation in the flow of the brook was first made in 1835. The sewage was introduced into the brook by the defendants in 1846, soon after the passing of the local Act. The evidence shows that the water in the brook is very foul where it leaves the sewer; that the sewage matter in the course of the deviating stream does indeed diminish, but that it never entirely leaves it. That appears to be also the case where the brook passes through the plaintiff's land. I think those facts are established by the evidence, and that the clear result of the whole is that the present state of the brook does injure the plaintiff's property. In my opinion it is quite impossible for any one to read the evidence in this case and not come to the following conclusions:—First, that the plaintiff's property has been, and still is, seriously injured by the pollution of the stream or brook which now flows through it. Secondly, that that pollution is caused by the sewage matter which is discharged into the stream or brook. Thirdly, that that injury has increased; that it is gradually, and from time to time, still increasing; and that eventually, if not checked, it will become an absolute nuisance to all persons using it, or living in the neighbourhood of it. The evidence adduced by the defendants does not displace that brought forward by the plaintiff. They do not say that the brook is not polluted; but they contend that the pollution arises out of causes quite different from those assigned by the plaintiff. They say that it is owing to the farm refuse cast into it from a homestead in the neighbourhood of the plaintiff's property. I think that contention cannot for a moment be supported. It is a well-known fact, common to all who are experienced in such matters, that a result of that kind seldom happens from such a cause; and here, I think, the evidence certainly does not show that it has happened. It is not necessary for me to go through all the evidence in detail. I may observe with respect to it, that the cross-examination of many of the witnesses has the effect, as it very often does have, of leaving the testimony of the witnesses where it originally stood. In some instances, indeed, it has succeeded in confirming that testimony. This, however, it does show, that the present state of things has been going on for a long time. No doubt it has; and upon that the defendants founded an argument that it was idle on the part of the plaintiff to come here now and complain of what has been so long done. They also contended that there was nothing to show the actual amount of injury inflicted; that that could only be in proportion to the quantity of sewage discharged into the brook; that what might be injurious in one part might not be so in another. But the answer to that is that a certain amount of sewage may do a certain amount of injury for one mile, and a different or greater amount may do more mischief in two miles. As to this, however, there is no doubt; that some injury has been done and is being done to this brook, which before that injury was commenced was comparatively pure. But the injury to the plaintiff was not, and is not, confined to his land on the one hand, or to his lake on the other. It extends to all his property, and, indeed, to Brook Farm. That, I think, appears even from the defendants own evidence. But if they are right in their contention, what is the present position of the plaintiff? It really seems to me to be very much like this: if they are not wrong, what they say amounts to this; the plaintiff comes to this court for an injunction to restrain the injury as soon as he ascertains its existence; the defendants say to him: "Oh, but you are too early; the damage of which you complain is but occasional, and far too inappreciable for this court to interfere on your behalf. There is, in fact, no proof of actual injury to your property. You must wait till the injury you complain of has become an undoubted nuisance." Well, but suppose he does wait till then, what might the defendants say? Why this: "Oh, but you should have come earlier. It is a nuisance, and you are too late in your application for a remedy in this court." That being so, I am of opinion, that where a man has a right to the use of an ancient stream of water flowing through his land, and sewage matter is so precipitated into the stream as to pollute it, and to prevent his using it, he may come to this court for an injunction to restrain that pollution before it has become a nuisance; and it is not competent for the persons causing the nuisance to claim as against him a prescriptive right to discharge the sewage matter into the stream. I am aware that the question at issue is a very important one. It was said in the course of the arguments that private rights must yield to public interests. But assuming that that were the rule—even assuming for a moment that it were so—I must respectfully differ from it. I do not think that private rights, as such, ought to be interfered with by public interests. It so happens that in this case we may fairly say the right of an individual is not only compatible, but identical, with the interests—the true interests, I think—of the public. The injury done to the public at large by the pollution of a stream of water may be immense. It is almost impossible to calculate the amount of mischief which may accrue to cattle drinking of it, or to persons living in its neighbourhood and using it for their various purposes of life. What do the evidence of science and the opinions of scientific men tell us? They show—and this court cannot in such a case as this disregard the fact that such things are—they show us that the disease which may overtake men and animals from the use of a stream of water which has been polluted by the discharge into, or absorption by it, of even the minutest particles of feculent matter, are almost infinite and incalculable. Of course, I am not deciding this case upon those considerations, although I think it right to advert to them. The ground of my decision is the fact that an injury has been, and is still being, done to the rights and property of the plaintiff. I believe, indeed, that the injury affects not the plaintiff alone, but also persons living in the neighbourhood. I am of opinion that that injury, and all the causes of it, should be forthwith removed; and I am also of opinion that the plaintiff was not, and is not, bound to wait, before he seeks the intervention of this court, till that injury has grown into an undoubted nuisance. The result of the whole case, then, is that the plaintiff is entitled to a decree for an injunction to restrain the defendants from causing the sewage to flow into the stream so, or in such a manner, as to injuriously affect it in its passage through his property. That decree will be pronounced as of to-day; but I will direct the injunction not to be enforced before the last day of Hilary Term. I say that because, from my experience of these boards of commissioners, they never yield until compelled; and I assume, therefore, that this decision will be appealed from. I will not enforce the injunction even in Hilary Term if, in the meantime, the steps for an appeal are taken by the defendants. The plaintiff must have his costs of the suit.

VICE-CHANCELLOR'S COURT.

(*Before Vice-Chancellor Sir* W. P. WOOD.)

SATURDAY, NOV. 25.

SPOKES *v.* THE BANBURY LOCAL BOARD OF HEALTH.

Mr. ROLT, Q.C., and Mr. RENSHAW appeared for the plaintiff; and Mr. GIFFARD, Q.C., Mr. E. F. SMITH, Q.C., and Mr. DICKINSON for the defendants.

This was originally a bill filed by the plaintiff, the lessee and occupier of a mill called Twyford Mill, on the river Cherwell, near Banbury, against the Banbury Local Board of Health and their clerk, praying an injunction to restrain the board from causing or permitting the main sewers of the town and district to discharge the sewage into the river to the injury of the plaintiff, his family, and servants.

At the hearing on the 1st of March last (reported in the JOURNAL OF GAS LIGHTING, No. 323, p. 147), an injunction was granted, and the writ was in the following terms:—

We, therefore, in consideration of the premises, do hereby strictly enjoin and restrain you, the said Banbury Local Board of Health, your servants, workmen, and agents, under the penalty of £5000, to be levied upon each and every of your lands, goods, and chattels to our use from and after the 1st of July, 1865, from causing or permitting any sewage or water polluted with sewage to pass through the drains or channels under your control into the river Cherwell in such manner as to render the waters of the said river at or near the plaintiff's mill unfit for use by the plaintiff, or otherwise injurious to the health of the persons resident at the said mill.—Dated the 12th of May, 1865.

On the 1st of November the plaintiff gave notice of motion for a sequestration, and several affidavits as to the facts which had occurred since the 1st of July last had been made, and others in reply. The principal affidavit was by the plaintiff, who deposed that since the 1st of July the river Cherwell, at Twyford Mill, had been, with two or three exceptions, when heavy rains had fallen and filled the river with surface water from the land, in a filthy and disgusting state, caused by the sewage of the town of Banbury being discharged into it, and that during his experience of the river at the mill, where he was born and had ever since lived, it never was in so filthy a state as it had been during the months since the 1st of July aforesaid.

It then set out various particulars as to the nuisance and the effect it had had upon the healths of his family and servants living there; also as tarnishing articles of plate; and other grievances since the 1st of July, 1865.

The affidavits in reply stated that every means had been used by the application of chemicals and other processes to deodorize the sewage, but that it was found to be impossible; that eminent medical and other opinions had been taken, and it was believed that in time the contemplated remedies might effect the object desired.

As to the property belonging to the corporation, and upon which only a sequestration could operate, it was deposed to in the following terms:—"A stoneyard, used for storing and breaking stone, with stable and cartshed thereon, and a piece of ground on which the sewage works and tanks are erected, and on a portion of which the sweepings of the streets and refuse of the town and district are deposited, and horses, carts, stone, and various articles used for repairing and cleaning the highways and sewers and drains in the district, and also the books, papers, and muniments of title, the whole of which property is vested in the board under the provisions of the Public Health Act, 1848, and the Local Government Act, 1858, and are requisite and necessary for carrying out the duties imposed on the board by the before-mentioned Acts, and without which the board would not be able to carry out either the order of this honourable court or any of the provisions of the before-mentioned Acts, and the said board have no other property in the district," &c.

Mr. Rolt, Q.C., in support of a motion for a writ of sequestration, contended that there had been a clear breach of the injunction, and that the plaintiff was entitled almost as a matter of course to the writ of sequestration. He was stopped by the court, who called upon

Mr. Giffard, for the board. He contended there had been no wilful contempt. Everything which could be thought of had been attempted to carry out the decree of the court. Processes by chemicals had been tried, and the advice and assistance of eminent medical men and engineers were had recourse to, but it was found at present not possible to deodorize the sewage by these means. But hopes were entertained by many that they would eventually be successful and attain the object desired, so as to render the water of the Cherwell flowing by the plaintiff's mill innoxious. They admitted they might have come to the court for an extension of time, but the court being satisfied that there had been no serious intention to disobey the injunction granted, would not act with severity, but allow these further attempts at a remedy to proceed. They also objected that any writ of sequestration would be inoperative, as the property vested in the board was in fact public property, and held by the board on the specific trusts, according to the provisions of public Acts of the Legislature.

Mr. Rolt, in reply, said the plaintiff had a clear right to the writ. Some way would be found by which the sheriff would execute it. The defendants were determined to set at defiance the powers of the court, and were advisedly evading the terms of the injunction.

The Vice-Chancellor: I think that in this case the defendants have been labouring under a mistake, and as it appears to me a very gross mistake, which I attempted to dissipate in the case of the Birmingham Local Board of Health, to which I have already referred, and I have not found that any court has at present quarrelled with the conclusion at which I arrived in that case. Certainly the order as made was obeyed in that case, and obeyed without appeal. There I was told that the large and important town of Birmingham would be stifled and smothered, and perhaps subjected to pestilence, if the board were not allowed to discharge the whole of their sewage into the river in which a private gentleman, the plaintiff, had certain rights of fishing, as well as of sending his cows to drink, and other matters of that kind. But it appeared to me quite plain from the Act of Parliament that they had no right to discharge their sewage into the river, and I did not in the least regard the circumstance of their acting for 100,000 people any more than I should have regarded the circumstance of their acting for one; and I think the principle of the law must fairly be so. What difference can it possibly make, as to the commission of an illegal act, whether a man acts on behalf of thousands or on behalf of himself only? The act is illegal, and being illegal the party injured has a right to be protected, and it does not signify whether the injury is inflicted by many or by one. Now, as regards the question of wilful breach of this injunction, Mr. Smith said, and Mr. Giffard followed him, that if this were the case of an individual the court would not act unless it was convinced that there had been a wilful breach of the injunction, and that the court would not commit the individual. I answer without doubt, that if this had been the case of an individual, I should have considered what has been done as a breach of the injunction, and should have committed that individual. Assuming it to be the case of an individual, the matter would not bear argument for a moment; and I am very glad that illustration was put, because it will corroborate the opinion I very strongly entertained and acted upon, and shall continue to act upon, unless it is corrected by a higher tribunal—viz., that the rights of those who are injured cannot depend upon the question of whether it be one or many who inflict the injury. Just take the case of an individual—see how it would stand, and whether there would not be a deliberate breach of the injunction. Supposing a man, as it must be supposed in this case, for his own convenience, for the purpose of getting rid of his own sewage—something that annoys him exceedingly—throws it into his neighbour's yard, or into his neighbour's river, and that he is ordered by the court not to permit the sewage under his control to pass into his neighbour's river to his annoyance, and that he afterwards comes here with a story telling me that he has consulted most eminent chemical authorities, and has done the best he can during a long continuance of inquiry, but that he has found out there is no possible mode by which he can deodorize the sewage, or at least that he has not yet arrived at or discovered it, and therefore that he has not ceased to pour that sewage into the river, or upon his neighbour's property; that he pours it into the river because he does not find it pleasant or agreeable to retain it, that he is going to continue to pour it into the river until he shall find out something that will deodorize it, and asks the court to stay its proceedings until that is done. Would not that be a most outrageous breach of the order, and a clear flagrant contempt, for which the only proceeding the court could take would be to order a committal? Morally speaking, I can see a wide difference between that case and the conduct of these gentlemen. I do not suppose they had any, I certainly hope they had not any, intention of committing a wilful breach of the order of the court, although I was not a little surprised to hear an eminent counsel tell me, not precisely that he would advise his clients to commit a wilful breach, but that he would not advise them to do what was necessary to comply with the order of the court. I confess I was surprised to hear that; and I think it due to the dignity of the court to say that is not the view which the court can take of any of its orders, but that the simple and only view is that it must be obeyed, and that those who wish to get rid of that order must do so by a proper course of appeal. So long as it exists the order must be obeyed, and obeyed to the letter; and any one who does not obey it to the letter is guilty of a wilful breach of it, unless there be some misapprehension, which all mankind are subject to, which may mislead him upon the plain reading of the order. But in this case that the order is plain there is no doubt; it is plain and distinct that the defendants shall not, after a given day, permit any sewage to pass through the drains or channels under their control into the waters of the Cherwell in a manner to make it unfit for the use of the plaintiff. This is a thing which no human being can misunderstand. The order upon them is as plain as possible, that they shall not suffer anything to pass through the drains or channels under their control into the river Cherwell, so as to make the water unfit for the use of the plaintiff. Having that order before them, their simple course was to say that, "After the 1st of July, come what may, we must not allow the sewage to pass into the river Cherwell." It was not for them to say, "Let the court or the plaintiff point out what is to be done, or how we are to deodorize it." The plaintiff does not care in the least whether you find out a way to deodorize it or not. The plaintiff only says, "I have an order of the court, which says you shall not send down filthy sewage to me. It is your duty not to send it. I have nothing else to do with it. I am content to rest on the order of the court, and it is for you to show the court that you have obeyed it." These gentlemen were given from the month of March to the 1st of July to comply with the order. The order was made in the month of March, and, as has been done in several cases, knowing that it requires time for things of this kind to be carried into effect, the court said, "You shall not be bound to comply with the order until the 1st of July, but the order is made peremptory from the 1st of July." Besides, it is a decree of the court, and is not under my control; I cannot alter it, although it is my own decree—it is beyond me. There it is standing, and I have only to see that it is obeyed. If they had come before the 1st of July with a motion to ask for a longer time to comply with the order of the court, it would have been a question, even then, whether the court would have had power to enlarge the time mentioned in its own decree, because it is not an interlocutory order. But, at all events, that might have been tried. Instead of which they quietly let the 1st of July pass by, writing a number of letters in which they say they are very uneasy because the 1st of July is so near; but it never seems to have occurred to their minds that there was an order of the court which is not satisfied by being uneasy because the time is so near at hand. I can only say that does not satisfy the order, but that the order required obedience, or at least required that an application should be made to the court that they may have some further time, if it should appear that such an order can be made; although I cannot say that, as at present advised, I should have made the order. My conviction is that there are no means of effectually dealing with the sewage, and I am satisfied of that by their own evidence. Dr. Letheby, in one of his letters—I do not read it, because it is in my remembrance, and I dare say in the recollection of others—says: "I think it may go on in such a state during the winter months as possibly to require very little to be done, because there will be a copious supply of water, and when the supply of water is copious, which may or may not be the case, although we happen to have had a very great deal of such weather up to the present moment, there will not be such a grievance." But on the 7th of October last, long after the 1st of July, and after the dry weather, one of their own witnesses, Mr. Beasley, who was sent down to inquire into it, said:—"You have made everything very comfortable for the town, and that is what the town cares for; there is hardly any smell outside the walls, and I am sorry I cannot say the same as to the river." That is long after the time at which they ought to have ceased pouring their sewage into the river, and this gentleman says, "I am sorry to say I must make an indifferent report as to the river." Then, in another letter, Dr. Letheby says, "During the present supply of fresh water there is no such great evil;" but in a former letter he says, "I think you will get rid of such and such inconveniences if you will follow out what I recommend as my course of deodorizing;" and he says, "I am afraid you will not get rid of (what he calls) the second fermentation; I do not see how it is to be done." Whereupon some other scheme, like the Croydon scheme, is thought of, and both Dr. Letheby and Mr. Hawksley say that will not do. You cannot try the Croydon scheme, because it is clay land, and even if you bought a large property, you would not be able to get enough to absorb the impurities, because it is clay soil, which will not absorb these impurities. Dr. Letheby also says, which I am sorry to hear, that even the Croydon scheme—which it was thought would prove so successful—has not turned out so successful as it was supposed it would. It is, therefore, quite clear and plain that the plaintiff cannot be protected except by simply stopping the sewage, and I apprehend that is the course which the defendants ought to have taken. They created the evil: it did not exist until they made their works. That question was tried at the hearing, and I cannot now rehear the cause; and although there were other works and other drains that went from the town of Banbury, they did not create the evil. What created the evil was what was done by those gentlemen, and they who created the evil must remove it. It is not for me to say how they are to do it. What they have done they must undo. They must take their own steps; but it is only right they should know that there is no distinction whatever made by this court between the case of an individual—and, as I said before, I am glad the illustration was put—who finds it convenient for its own accommodation to turn his own filth into his neighbour's yard or river, and the case of an aggregation of individuals like the town of Banbury, who find it convenient for their own accommodation to turn their sewage into this gentleman's millpond. They had no right to do it; and it appears to me quite plain that there has been a breach of the injunction. The only doubt I had was as to the sequestration, and that was whether it would be effective. I see a certain class of property—I do not wish to specify it—on which I think it would operate, and therefore I shall grant the sequestration; and the costs of this motion must, of course, be paid by the defendants.

COURT OF EXCHEQUER.

Guildhall, Friday, Dec. 8, 1865.

(*Before Lord Chief Baron* Pollock *and a Special Jury.*)

WARD *v.* THE GASLIGHT AND COKE COMPANY.

Mr. Bovill, Q.C., Mr. Manisty, Q.C., Mr. Karslake, Q.C., Mr. C. Pollock, and Mr. H. T. Holland, appeared for the plaintiff; and Mr. Hawkins, Q.C., Mr. Coleridge, Q.C., and Mr. Hannen, for the defendants.

The declaration stated that the plaintiff was the lessee and occupier of certain rooms and stables being part of a house called Saville House, Leicester Square; that the defendants supplied the said house and rooms with gas, and that they so negligently and improperly conducted themselves in and about the management of that gas that large quantities thereof escaped and caused an explosion, whereby the plaintiff's property was destroyed. Special damages were stated by reason of the fire. In a second count the declaration stated that the plaintiff was the owner of certain stables and premises adjoining Saville House; it also alleged the same negligence on the part of the defendants, and special damages also. The defendants pleaded "Not guilty;" and, as a further plea to the first count, that the plaintiff was not the lessee and occupier of the premises, &c. A like plea also was pleaded to the second count, and upon these pleas issue was joined.

Mr. Bovill, in opening the case, said Mr. Ward, the plaintiff in this action, was a manufacturer of easy chairs and other articles of furniture, and formerly carried on his business in Leicester Square, under a part of the house called Saville House, which house was occupied in various ways.

Amongst other tenants was a Mr. Carl Bloom, who had certain accommodation in the premises the nature of which it was not at present necessary to describe. A fire took place at Saville House on the 28th of February last, on which occasion the whole of the premises and their contents were destroyed. This action was brought by Mr. Ward, who lost a very considerable amount of property, to recover from the Gaslight and Coke Company the amount of damage he had sustained. The action was brought by Mr. Ward because he was the party who was in occupation. He was partly insured, but not to the full extent, in the Commercial Union Insurance Office. He sought not only to recover the difference between the actual loss and the amount he had received from the insurance office, but also to recover from the defendants the sum which they had been called upon to pay him under their policy; for, however much the insurance company might insure against accidental damage, they did not undertake to insure against carelessness and want of proper precautions on the part of the gas company. The jury would better understand this part of the case if he stated that it was very similar to the more familiar instance of an insurance by underwriters. In a policy of that kind there was a clause under which the owner of the ship was insured against the consequences of a collision. He was not put to the expense of an action against the party doing the damage, but the underwriters paid the policy and themselves took proceedings against him in the name of the assured, which was a very common thing. In the present case the action was brought in the name of Mr. Ward—he sued on behalf of himself, and also on behalf of the insurance company, for the amount of damage upon that part of the property that was insured. The jury would not be troubled with any discussion as to the amount of damages, nor would it be necessary to enter upon any discussion as to the part which was insured and the part which was not covered by the policies, because it had been agreed between the parties that all questions of amount should be left to an arbitrator.

Lord Chief Baron POLLOCK said the plaintiff's claims for his own personal risk did not rest upon the same footing as the claims of the insurance company. The learned counsel must be careful to distinguish between the two, because it might possibly give rise, in point of law, to different considerations. Practically, he might say, it should give rise to very different considerations indeed.

Mr. BOVILL said it was not necessary to trouble themselves upon that point now.

Lord Chief Baron POLLOCK said it so happened, as they all knew, that in a running-down case there never was a verdict found for the defendant on the ground that it was a mere accident. There was, however, in his opinion, a wide difference between an action brought to recover damages by the party whose property was destroyed and an action brought to indemnify the underwriter who had insured the vessel. In the present case, he supposed the parties had arranged so as to enable them to meet this difficulty.

Mr. BOVILL said there would be no difficulty about it, because his client was himself a considerable loser, and all questions of amount were to be settled by an arbitrator if the gas company were found to be liable. The plaintiff in this case charged that the fire which took place at Saville House was caused by the negligence of the Gaslight and Coke Company. The fire most undoubtedly was caused by an explosion of gas, which had escaped into the premises; and whether that escape was caused by the negligence of the gas company or not was the question which the jury would have to try and determine. He did not think it necessary to advert to those nice distinctions to which the learned judge had drawn attention, nor indeed did he think that such nice distinctions entered into this as sometimes entered into the consideration of a running-down case.

Lord Chief Baron POLLOCK: The case of insurance is somewhat peculiar. If you insure your house you insure it against your own negligence.

Mr. BOVILL: You do.

Lord Chief Baron POLLOCK: Just as when you insure your life you insure it against your own negligence. If you happened to be killed by crossing a railway when a train is coming, the insurance company cannot say: "We will not pay the money, because the insured was killed by his own negligence."

Mr. BOVILL: Quite so.

Lord Chief Baron POLLOCK: So in case of fire. The question seems to be rather a serious one—whether the insurance is against the negligence of other people as well as against your own. I have great doubt whether the party who is insured has himself, if he does not suffer, or if he suffers by the negligence of others, and the loss is eventually made up to him by the insurance company, a right to maintain an action.

Mr. BOVILL said this point was settled long ago; but it was not necessary to trouble his lordship about it in this case, for the question did not arise here. There was no suggestion that Mr. Ward was guilty of any negligence at all.

Lord Chief Baron POLLOCK: No; not Mr. Ward, but other people.

Mr. BOVILL said he was almost sorry he had mentioned the fact, although it seemed necessary to do so, for it did not enter into the question. If, however, it should be found to do so, he would, upon another occasion, have the authorities with him to show that the principle he contended for had been sanctioned and approved—viz., that if mischief was done by the wrongful act of other parties, by which the underwriters suffered, they could recover from those parties, but that they must pursue their remedy in the name of the person injured. However that might be in other cases, it was clear that in this case Mr. Ward was himself a considerable loser; what the amount might be would be discussed hereafter. That point had been purposely withdrawn from the attention of the jury, in order that their minds might be directed to the real issue between the parties—whether this fire was caused by the negligence of the gas company or not. Referring again to the facts, he might state that a part of the premises forming Saville House was occupied by Carl Bloom, consisting of the music-hall, a billiard-room, and certain other accommodations, which it was not material to go into the consideration of. He had occupied this part of the premises for some time. At the commencement of the present year, or at the latter part of last year, he increased his occupation by adding to it a saloon, which was over the billiard-rooms, and, in order to make arrangements for lighting that saloon, one of the gas company's men went to the premises. He ought to have stated that the whole of Saville House, which was formerly lighted by the Equitable Gas Company, was, at the time of the explosion, lighted by the Gaslight and Coke Company. The gas passed through the main in Leicester Square, and was supplied to Saville House by means of various iron service-pipes passing underground into the building. The connexions between the main and service-pipes in the house were principally of iron, but there was only one of those services to which attention need be directed—viz., the one which went from the main to the entrance hall or passage of the building. It came up behind the door at the right-hand side in the angle of the passage, and there it stood at some height above the floor. On the top of the iron pipe was a tap, and through this service the chandelier and other lights in the passage were supplied; also some lights in the billiard-room, and in the saloon over it. Altogether there were something like 60 or 70 lights so supplied. Above the iron service and the tap was a leaden pipe, which conveyed the gas to the meter. This was called the inlet-pipe, and was curved over and bent down so as to enter the meter at the top on the opposite side to the outlet-pipe, which was also of lead. [The learned counsel, by means of a diagram, illustrated the position of the pipes and meter.] There were other supply-pipes which went to other parts of the premises, but it was not necessary to refer to them, as there could be no doubt that the fire was caused by an escape of gas from the one to which he had already called attention. It appeared that shortly before the 27th of Feb. last some communication took place between Bloom and the gas company, the result of which was that one of the company's men went to the premises on that day and took off the covering of the meter. He said that it would be necessary to put up a new meter; that some quantity of gas had escaped, or something of that kind, and that it would be necessary to have a fresh meter. He said he would come the next day and do it. Accordingly, on the 28th, which was Shrove Tuesday, two of the company's men went to Saville House. The only importance to be attached to the fact of its being Shrove Tuesday arose out of the circumstance that the men instead of attending to their work were engaged in eating pancakes in the kitchen. They took down the meter, but did not put up a fresh one, as they said the company had not got one that would do, and that it would be a week or a fortnight before they could supply one. Of course, they could not suppose the premises would be left in darkness, and what they ought to have done was to form a connexion between the inlet and outlet pipes, so that the gas would continue to be supplied as usual, which was the ordinary arrangement when it became necessary to remove and replace a meter. Whether they intended to do so, and whether they had brought a connecting-pipe with them for the purpose, would be seen in the course of this inquiry, but that they did not make the connexion was certain. In the after part of the day one of the servants of Bloom went to turn on the gas, thinking that the company's men had made proper arrangements. He found, however, that the gas would not light, and, upon going to ascertain the cause, it was discovered that the inlet-pipe had been left open. The gas consequently flowed out, and an explosion was caused which destroyed the premises. A most extraordinary account of the matter had been given by the gas company, through the person who made the statement under the order of the judge upon the interrogatories supplied. The secretary or manager made this statement on behalf of the company only upon the information given to him by the official who attended to the matter, and that statement was as extraordinary as could well be conceived. The account was to the effect that the meter was in a good condition, and that it was removed only because it was too large, a 30-light meter being all that was required by Bloom. That story evidently was not true, because there were a great many more than 30 lights to be supplied through this service, and it was clear that if only 30 lights were required the meter would register as well for that number as for 50 or 60. The fact was, there was no pretence for such a statement. In the next place, the fire having been caused in the way he had narrated, the company did not suggest that any connexion had been effected or any arrangement made for the supply of this part of the premises with gas, but they stated that their men having taken down the meter placed a cork or bung in the orifice of the inlet-pipe. This was a most extraordinary story, for their duty was to have restored the connexion between the inlet and outlet pipes in order to continue the supply of gas, and there could be no doubt that when the explosion took place there was no bung in the pipe. What they did was to turn off the gas at the tap, and probably they thought that was quite sufficient. They did not put a bung or anything else into the orifice of the pipe, but left the handle or key on the tap, so that a person not knowing that the service had been disconnected would turn on the gas in the ordinary way.

Lord Chief Baron POLLOCK: How soon afterwards did the explosion take place?

Mr. BOVILL said some hours after the removal of the meter. The servants of Bloom not knowing what had been done, and finding the key on the tap, turned the gas on when it got dark, and a few minutes afterwards the explosion took place. The story of the gas company's men was, that they put a bung covered with white lead in the pipe and drove it in with a hammer, but that could not be so, for then no explosion would have occurred. Supposing that, however, to have been the case, there would be abundance of evidence given to prove that this was not the proper mode of dealing with a case of this kind. They ought, in the first place, to have turned off the gas at the main-tap and removed the key, so that no person could get to it. In the next place, they should have taken away the leaden pipe, as there was always a risk that it would turn over and break off; and then they should have put an iron cap on to the top of the brass tap. Had they done this no mischief could have arisen, and it would be proved that this was the course they should have adopted. As to the putting in of a bung, it would be proved, in the first place, that such a thing was not done at all; and next, that if it had been done it would have been a very insecure and improper mode of proceeding. It was not necessary that he should do more than give this general outline of the case; there would be a large array of evidence placed before the jury to prove these facts, and, as he had already intimated, the question of the amount of damages would not have to be considered, but only whether or not the company were or were not responsible for the accident that arose under the circumstances stated.

William Larven, examined by Mr. MANISTY.

I was in the employ of Carl Bloom in the month of February last. Bloom occupied a part of the premises called Saville House at that time—viz., the saloon, the music-hall, the billiard-room, and a large room on the first floor. He had let the billiard-room to a person named Rock. [Witness described by the model the arrangement of the premises.] The approach to the front door was by steps. After passing the door there was a long passage, on the right-hand side of which was a door into the billiard-room, and at the end of the passage beyond folding doors was the music-hall. The billiard-room was of considerable size. It had in it only one large table. Above the billiard-room was the saloon, which Bloom had occupied for some three or four weeks previously. The other parts had been in his possession for a longer period. There were about 20 bracket lights in the passage, and a chandelier. The service-pipe for these lights, and for those in the billiard-room and saloon, was on the right-hand side of the passage, and there was a meter in the corner, behind the folding doors, about 9 or 10 feet above the floor. The tap by which the supply of gas was turned on was not quite 6 feet above the floor. The service-pipe was an iron one up to that point. I do not know what metal it was beyond. There were about 16 lights in the billiard-room, and 30 in the saloon. Ward, the plaintiff, is a maker of easy chairs, and occupied the basement of the house, below the billiard-room. I do not know whether that part was supplied with gas from a different service-pipe. About a week before the fire the gas company's inspector called at Saville House. We had been using gas in the billiard-room before that every day, and in the large saloon we had used it a few times. When the inspector called he told me he had heard that Bloom wanted to have the

gas put on, and he said he must have a deposit for the meter if the gas was to be used in the saloon. Bloom was not there at the time, but I promised to mention the matter to him, and the inspector said he would call again.

Mr. MANISTY: Do you remember whether you named a time for him to call?

Lord Chief Baron POLLOCK: How can that be of any importance?

Mr. HAWKINS: It may be, my lord.

Examination continued: The inspector called on the Saturday, and I told Bloom, and asked him for the money. He said he had paid away so much he could not do it then, and the inspector was to call again on the Monday. He did call about one o'clock that day, and brought a man with him. He looked at the meter, and said there had been a great quantity of gas burnt—about 40,000 feet—and that he must be paid for it. I told him I did not believe Bloom had burnt so much, and I referred him to the proprietor of the house, Mr. Morris, or his agent. The inspector said he did not know how it was, but he thought there must have been an escape of gas. I told him I wanted him to get the gas right as soon as possible, as Bloom wished to have the saloon lighted. He said he would see what he could do. He asked me for a hammer and chisel, and they broke open the wooden box to look at the meter. They did not take away the meter that day. He asked for £3 as a deposit, and Bloom paid it to him that day in my presence. He and I had a few games of chess together, and he dined with me. His man, I believe, dined in the kitchen. On the following day he came again by himself, about one o'clock, and his man came about ten ten minutes afterwards. He said he could not give us a new meter yet, but he would take the old meter down, secure the pipes, and bring us a new one as soon as possible. I asked him when, and he said in about eight days. He did not say anything about the gas that would be used in the meantime, or about the mode of ascertaining the quantity consumed. They took the meter down, and put it in the cellar at the end of the passage. I saw the men in the kitchen that day—it was about two o'clock or a quarter past; they were eating pancakes. I did not see them do anything else that day. They stayed some time in the kitchen, and went straight away from there without doing anything else. I saw them go out. I had no reason to suppose we could not use the gas; they did not say we could not. There were no other means of lighting the billiard-room, saloon, and passage, except by gas. I went out about half an hour afterwards, and when I returned the house was on fire. I had been on the premises every day before the fire. There had been no escape of gas that I am aware of.

Cross-examined by Mr. HAWKINS: I had been in Bloom's service for about two months. I had known him before that. I did not know him when he kept a beerhouse in Ratcliff Highway. He was in partnership in a City house when I first knew him. It was a music-hall. Bloom is not here now; I have not seen him in court to-day. The last time I saw him was two months ago. There were two meters and two supply-pipes from the main into Saville House. The passage leading to the music-hall was lighted from the large meter, and the entrance passage from the 50-light meter behind the door. The large meter was in the inner passage, on the left-hand side. From that meter the whole of the front part of the house, with the exception of the billiard-room, was supplied. I was in Bloom's employ when the billiard-room was used to exhibit a fat woman.

Lord Chief Baron POLLOCK: Was that the Hottentot Venus?

Mr. HAWKINS: She was bigger than that, my lord. She was exhibited to a discerning public—at least to as many as would take time to go round her.

Lord Chief Baron POLLOCK: How many days did it take to go round her?

Mr. HAWKINS: About as many days as to try this case.

Cross-examination continued: The billiard-room was then lighted from the meter behind the door. I do not know exactly when that exhibition was; it was not long before. I know that some time previously Roberts, the billiard player, occupied the room, but he had left some months before I went to the place. The gas-fittings, I believe, belonged to the tenant. I do not know the name of the gas company's inspector who called, but I know him by sight. I have seen him here this morning. I do not know what his intention was in taking the state of the meter. I had never seen him there before. I had never seen him take the state of the big meter. Bloom saw him in my presence. He said a deposit must be paid on the meter and a contract entered into, but he did not say that must be done before the billiard-room was lighted. The inspector asked me for a hammer and chisel, and his man opened the meter-box.

Mr. HAWKINS: Did he tell you he was surprised to find, according to the meter, that there had been a large consumption of gas?

Witness: He told me he was surprised so much gas had been used.

Mr. HAWKINS: Did he tell you that when Roberts left in March, 1864, the pipe was stopped, and that he was surprised to find that the meter now showed there had been a great quantity of gas used since?

Witness: He never spoke a word about Roberts.

Mr. HAWKINS: Did you say to him that no gas had been used from that service; that you had only lighted one burner for a few minutes?

Witness: Certainly not. I told him that in the large saloon we had been burning gas three or four times; and he knew that in the billiard-room the gas was lighted every day.

Mr. HAWKINS: Do you mean to say that he knew it?

Witness: I should think he knew it.

Mr. HAWKINS: He told you he was suprised at the quantity of gas consumed. Was that after he had looked at the state of the meter?

Witness: Of course; he could not say so before.

Mr. HAWKINS: Did not you say to him that no gas had been used by you from that supply, and that you had only lighted one burner for a few minutes to try the fittings after your gas-fitter had been there?

Witness: Certainly not.

Mr. HAWKINS: Did he tell you there was a large quantity of gas unaccounted for?

Witness: He told me there had been about 40,000 feet of gas burnt.

Mr. HAWKINS: Unaccounted for—gas of which no account had been rendered; is that what you mean?

Witness: No; he said there were 40,000 feet to be paid for.

Mr. HAWKINS: Did not you yourself say that if the meter showed such a consumption as that the gas must have escaped under the floor boards from your fittings?

Witness: No; I never said that.

Cross-examination continued: I never heard that Bloom's fittings were in a bad state. If they had been I think he would have sent for some one to repair them. I do not recollect the inspector (Cazally) saying on the Monday that he would come and see the next morning what further waste of gas there had been. He did come the following day about one o'clock, and Downs, his man, came about ten minutes afterwards. They got a pair of steps and examined the meter. Cazally did not tell me that there had been a further consumption of 500 feet since the previous day. I do not recollect his saying so. I did not ask him or Downs to go upstairs and look at Bloom's fittings, as far as I recollect. I will not say I did not say so, only that I do not recollect. I do not know whether Cazally went upstairs that day; he did on the Monday—not to look at the fittings, but because Bloom was there, and to get the £3 deposit.

Mr. HAWKINS: Did Cazally tell you that there must be some very great escape of gas, and that you must get a competent gas-fitter to search for it, and make your fittings good?

Witness: No; the inspector told me there must be an escape, but he did not know where, because I told him we had not burnt so much.

Mr. HAWKINS: How much did you tell him you had burnt?

Witness: I did not tell him any quantity, but he said there had been about 40,000 feet burnt. I thought there had been hardly any burnt.

Mr. HAWKINS: Now, I must put the question to you again. Did he not tell you that you must get a competent gas-fitter to search, and make the fittings good, and that till that was done you must not burn the gas?

Witness: No.

Mr. HAWKINS: Did you not say that you should not want the gas for a night or two, as you only used the room about two nights a week?

Witness: No.

Mr. HAWKINS: Now be careful, because the persons are here who were present at the time. Upon your oath, did you not say you would not want the gas for a night or two, as you only wanted the room two nights a week?

Witness: No, certainly not. I knew very well we must have the gas in the passage every night. I said we did not want the large room for a day or two.

Mr. HAWKINS: Which large room do you mean?

Witness: The one over the billiard-room.

Cross-examination continued: I did not hear Cazally say that until the gas-fittings were looked after we could not burn the gas. I do not recollect whether Bloom was there when I was talking to Cazally. I did not hear him say that he should never burn so much gas as Roberts had done, and, therefore, he should prefer a smaller meter. There were about 30 lights in the saloon, and 16 or 18 in the billiard-room. The chandelier in the passage was the only other light supplied from the same meter. I do not know why Cazally said on the Monday that he should have to take the meter away, for I did not understand anything about it. I do not know how many lights the new meter was to be for. Nothing was said about it, nor as to the reason for taking the old one away. I did not say that the gas was turned off at the main before the meter was taken down. I was there, but did not see it done.

Lord Chief Baron POLLOCK: It must have been turned off.

Cross-examination continued: I did not see the gas company's man with a bung in his hand. I did not see anything done to the service-pipe when the meter was taken down. There was not a bung put into the pipe in my presence. I remained there the whole time the gas people were there. If a bung had been put in, it is not certain that I must have seen it done, as sometimes I was in the billiard-room and sometimes in the passage. I do not know whether they used a light to try if there was any escape of gas before they left. I did not take them one nor offer them one. The main cock, by which the gas was turned on and off, was about six feet from the floor, and the handle of it took on and off. I did not see where that key was put. I do not know where it was ordinarily kept. William, the waiter, attended to the gas. I believe he is here. Other people attended to it sometimes. One of them was a waiter named Schultz, but he was not there that day. I went out with Bloom and another gentleman named Shike that afternoon about four o'clock. Shike formerly kept the billiard-room for Bloom. We went to get some money for a beerhouse in Ratcliff Highway which Bloom had sold. Bloom told me he had sold that public-house, but I did not know him when he was there.

Mr. HAWKINS: I understand you to say that you have not seen Bloom lately?

Witness: No.

Mr. HAWKINS: He has been here this morning.

Mr. BOVILL: We should be only too happy to find him.

Cross-examination continued: I saw him two months ago. He was then keeping a public-house called the "Rose and Crown," St. George's Street East, Ratcliff Highway. He took that house a long time after the fire. [Cards handed to witness]. I have seen these cards before. The photograph on one looks like Bloom. The portrait of the other person, who is drinking a glass of porter, is his partner. I do not know whether the place he keeps is a dancing shop.

Lord Chief Baron POLLOCK: Hand the cards up to me. [Cards handed up]. Which is Mr. Bloom?

Mr. HAWKINS: On the right-hand side: the gentleman who is proposing the health of the ladies. (To witness:) There are ladies there, I suppose?

Witness: I do not know. I have been there once or twice, but I never saw any ladies.

Mr. HAWKINS: I suppose when you went there you found Bloom in full bloom?

Witness: I do not know.

Mr. HAWKINS: How did he appear to be getting on?

Witness: I did not ask the question.

Mr. HAWKINS: What took you up there?

Witness: I had business in the neighbourhood.

Mr. HAWKINS: For all you know he is in the same place still?

Witness: I understood he had left the neighbourhood.

Mr. HAWKINS: He was in a great deal of difficulty when he was in Leicester Square?

Witness: No.

Mr. HAWKINS: Do you mean to swear that?

Witness: Yes.

Mr. HAWKINS: Do you mean to say that applications were not made to him for small sums which he could not pay?

Witness: He never owed for anything; he paid everything in cash.

Mr. HAWKINS: Was that because no one would trust him?

Witness: Certainly not.

Mr. HAWKINS: Do you mean to swear, as manager for him, that during the latter part of the time he was not in considerable difficulty?

Witness: I do not know anything about it.

Mr. HAWKINS: Did not you yourself, in a conversation with Mr. Cazally after the fire, tell him that when you said to him on the morning of the fire you should not want that meter, you did not know that the lights in the billiard-room were supplied through it?

Witness: I do not recollect anything about it.

Mr. HAWKINS: Will you swear that that was not said by you?

Witness: No.

Cross-examination continued: There was a woman in the house at the time of the explosion, named Latta—she was cook to the establishment. Her husband lived there, but he was not on the premises when Bloom and I went out. I was told that he came in before the explosion. I have seen him here to-day. There was a man called Georgie, who had had the billiard-room for two or three weeks previously. I do not know that a Mr. Pull-

man had had anything to do with the premises. Bloom had not sent for a man to look at the fittings before the explosion took place. I do not know a gas-fitter named Downs.

Re-examined by Mr. MANISTY: I saw no bung put into the pipe.

Lord Chief Baron POLLOCK: He said he went away and could not see all that was done.

Witness: I did not see all that was done.

By Mr. MANISTY: I was there when the men left the place where the meter had been. I saw no candle brought to try whether the gas escaped. I was in court when this case was expected to come on in July last. Bloom was here then. I have not seen him for the last two months, and have no notion where he is. I never saw Cazally except on the days I mentioned. There were persons calling every week from the gas company for money. They sent persons from time to time to take the state of the meter. The billiard-room was in use every day, and the chandelier in the passage, too. It was the only way in which the passage could be lighted. I had never before heard any complaints of the gas-fittings being defective, nor experienced myself any inconvenience from an escape. I believe the gas company's men got some corks and inserted them in the inlet and outlet pipes of the meter.

A JURYMAN: The witness might be asked whether he heard any instructions given as to burning the gas on the 28th.

Witness: I did not.

Mr. MANISTY: Had you any reason to suppose that you could not burn it?

Witness: Certainly not.

Mr. HAWKINS: He knew the meter had been taken down. I should like to ask him whether he had seen any connecting-pipe fixed between the inlet and the outlet pipes of the meter.

Witness: No; I had not. I did not look to see whether there was any. The men said when they took away the meter they would make it all secure.

George Rock, examined by Mr. KARSLAKE.

On the day before the fire at Saville House, I had hired the billiard-room from Mr. Bloom at so much per week. I was to let it to customers, and make what I could by it. I had been in the room several times before and seen that it was lighted with gas. There was a man named Schultz in the employ of Bloom as day-waiter. In the evening of Monday, the 27th of February, he showed me how to turn on the gas at the meter behind the door. He then lighted the burners in the billiard-room and the chandelier in the passage. In the afternoon of the following day I was in the billiard-room, and there were several persons then engaged playing at the table. A man named Rose was there playing at the time. When it got dark, I asked a man named Klassen to light the gas. There were some steps in the passage used for lighting the chandelier, and Klassen got upon them for the purpose of lighting it, while I went to the tap and turned it on. Klassen used several matches, but could not light the gas. I then turned the tap off, and Klassen and I went into the billiard-room, which was still in darkness. Rose and I afterwards went out to see how it was. Rose went to the tap and I went to the chandelier. We still found we could not get a light, and I said there must be something the matter. Rose then took the steps, and asked for a candle, as it was quite dark behind the door. When it was brought I called out: "Take the candle away, there is a strong smell of gas." But it was too late, for the place was on fire directly. I was nearly knocked down by a portion of the ceiling which fell upon me. It was between six and seven o'clock in the evening when the explosion took place. Up to the time I left the billiard-room for the purpose of lighting the gas I had not smelt any escape. From the time I went to the billiard-room, after trying to light it, until the explosion took place, it was from eight to twelve minutes. I did not see the gas men at the house that day. I had received no instructions not to light the gas. There were no means of lighting the billiard-room except by the use of gas.

Cross-examined by Mr. HAWKINS: I had known the place for about five months previously—not the billiard-room, only the music-hall. On the day of the explosion I had been in the billiard-room from ten o'clock in the morning. I had not smelt any escape of gas till just before the explosion. When I called out that there was a strong smell of gas I heard a whistling in the corner where the meter had been. Klassen was about two minutes trying to light the chandelier, and all that time the whistling was going on immediately over my head. I could not tell that it was the gas. It did not begin the same moment I turned the tap, but a minute afterwards. I did not hear any noise when Rose turned on the tap. I do not know a person named Krutz, a musician at the Alhambra. No one had complained to me of a smell of gas. I had not heard any one say, "Don't go there with a light." I saw Klassen use matches to light the gas.

Re-examined by Mr. KARSLAKE: The whistling noise could not have been from anything else than the escape of gas. I said to Klassen: "There must be something wrong; listen to that whistling noise." I then turned the tap off again. I did not see anything else, but went to Mrs. Bloom, and said there must be something the matter.

William Rose, examined by Mr. POLLOCK.

I was cellarman at Saville House at the time of the fire, and had been there for about three months. I remember the two men coming from the gas company the day before, and also on the day of the fire. I saw them at work in the corner where the meter was, between one and two o'clock. One of the men asked me for a cork, and I gave him one from a lemonade bottle. He said that was too small, and I then took him down into the cellar and gave him a bung about 1½ inch in diameter. He said, "If you have another, that will satisfy me," and I gave him another of the same size. About ten minutes afterwards he came to me and asked where he could have a place to put the meter, as it stunk a little. I told him he could put it in the cellar, and when it was brought down I saw that the two corks I had given him were in the two holes from which the pipes had been removed. I afterwards went into the billiard-room, and was there when it grew dusk and lights were wanted. I gave directions to Klassen to light the chandelier. He was a waiter. I do not know where he is now. He went out and came back again in two or three minutes, and said the gas would not burn. I said to him in German, "You fool, you don't light it properly." I then went out myself, and told George to go and get a candle. He got one, and I turned on the gas. I said, "Go and try again." He tried to light it again, and said, "It will not burn." I said, "Come down, and let me try." When I found I could not do it, I took the steps into the corner where the meter had been. I had a candle with me. I did not hear any noise. I went up the steps with the candle in my right hand, and put my left hand on the place where the meter used to stand. I tried to put the candle in the other corner, and as soon as I put the candle down I heard a noise, and the explosion took place.

Mr. POLLOCK: Before the explosion took place did you see the condition of the pipe?

Witness: Yes; I could see the pipe clean open.

Examination continued: I was blown down by the explosion. During the time I had been on the premises I had never before smelt any escape of gas. I had never till that day known anything go wrong with the gas.

Cross-examined by Mr. COLERIDGE: The noise I heard was a whistling noise when I went up the steps with the candle. I put the candle down where the meter had been after I saw the pipe open. I did not always manage the gas, except when the day-waiter was out. I understood about the management of it. I knew what the whistling noise meant, but it was too late then. I had been in the passage during the afternoon after the meter was removed, but I did not look to see the condition of the pipe. I had been at work in the cellar that afternoon. I always had a glass of something to drink every day. I had not had more than a single glass that day that I am aware of.

Re-examined by Mr. BOVILL: It was rather dark when I went to see why the chandelier would not burn. I did not know what the gas people had done. The key was on the tap when I got there. Although I am the cellarman, it was part of my duty to keep myself sober.

Lord Chief Baron POLLOCK: Every one knows what the duty of a cellarman is.

Mr. HAWKINS: There may sometimes be a struggle between duty and inclination.

Mr. BOVILL (to witness): Were you in any way tipsy or the worse for drinking?

Witness: No, sir.

Mr. *Max Treuherz*, examined by Mr. HOLLAND.

I had been in the habit of going to Saville House for two or three weeks before the fire. Up to that day I had never smelt any escape of gas. Shortly before the explosion I was in the billiard-room. I remember the last witness going out to light the gas. Soon afterwards I went into the passage, when I perceived there was an escape of gas, which was followed immediately by an explosion. I got out at the back of the house.

Mr. HAWKINS: You may stand down.

Mr. *W. Caulder*, examined by Mr. MANISTY.

I had been in the habit of dining in the billiard-room of Saville House for about six weeks before the fire took place. I was there on the afternoon of that day. I remember the man going out to light the gas. I did not hear Klassen tell William soon afterwards that there was a smell of gas and that he must take care. Before he went out to light it, I had not smelt any escape—neither on that day nor any other.

Mr. HAWKINS: You also may retire.

Mrs. *Henrietta Bloom*, examined by Mr. HOLLAND.

I was in Saville House in the afternoon when the fire took place. I remember the inspector and another man coming in. I offered them pancakes, and told them it was lucky to eat them on Shrove Tuesday. They did eat them. I remained in the kitchen till the time of the explosion. I did not smell any escape of gas. Mr. Bloom was out. I do not remember whether he came into the kitchen during the time the men were there. He was here last July, when the case was set down for trial. He is now in Germany on particular business. Some relation died, and he has gone to his father's to settle the business. He went last Saturday.

Cross-examined by Mr. HAWKINS: You can't spare him for long, Mrs. Bloom?

Witness: I have to spare him.

Mr. HAWKINS: You expected him back before this?

Witness: I expected a letter.

Mr. HAWKINS: But you expected him back before this?

Witness: Yes.

Mr. HAWKINS: When was this particular business?

Witness: About three weeks ago we had a letter from Germany.

Mr. HAWKINS: But he did not start till last Saturday?

Witness: No, he did not.

Mr. HAWKINS: So that the business was not very urgent?

Witness: He was in partnership, and he sold the business to the other gentleman, because we had lost the music license.

Mr. HAWKINS: I am coming to that presently. When was this?

Witness: Last Saturday week.

Mr. HAWKINS: But if three weeks ago he got a letter from Germany, and did not start till last Saturday, the business could not have been very urgent?

Witness: There was some relation of his died.

Mr. HAWKINS: The relation died three weeks ago?

Witness: Yes, before that.

Mr. HAWKINS: Well, now, I want to know this—you lost your music license, you say; why could you not get a new license for this house?

Witness: I don't know; that is not my business.

Mr. HAWKINS: Did you live in that house?

Witness: Yes.

Mr. HAWKINS: Was it a dancing-house?

Witness: Yes.

Mr. HAWKINS: For some of the Ratcliff Highway ladies?

Witness: Well, sir, we get our living from it.

Mr. HAWKINS: But it is a dancing-shop for ladies?

Witness: Yes.

Mr. HAWKINS: And that was one of the attractions of the house. I have got a card of it here. Just translate that for me. [Card handed to witness.]

Witness: I can't.

Mr. HAWKINS: Try. There is a picture of your husband there and another gentleman, pledging each other in a glass of porter. You can read what is on it.

Witness: Yes, but not in English.

Mr. HAWKINS: Well read it to yourself—you understand German?

Witness: Yes.

Mr. HAWKINS: You know what it means when you read it.

Witness: Can you understand me when I read German? [Witness having looked at the card read in English:] "There is a nice place to be had, called the 'Rose and Crown,' and there you can have cognac, beer, and wine, and you can ——." (A pause.)

Mr. HAWKINS: Come, out with the rest, Mrs. Bloom.

Witness remained silent for a few seconds, and then burst into tears.

Mr. MANISTY: What has this to do with the case?

Mr. HAWKINS: You will know when I call Bloom.

Mr. MANISTY (to witness): Do you know John Ward?

Witness: Yes.

Lord Chief Baron POLLOCK: What has that to do with the case?

Mr. MANISTY: I want to show that he has nothing to do with Bloom.

Lord Chief Baron POLLOCK: The cross-examination furnishes no reason for making an inquiry of the witness about Ward.

Mr. MANISTY: Why then introduce Bloom for the purpose of prejudicing Mr. Ward?

Mr. HAWKINS: It is not for the purpose of prejudicing him.

Lord Chief Baron POLLOCK: I thought Ward was the superior landlord.

Mr. MANISTY: No, my lord. (To witness:) Neither you nor your husband had anything to do with John Ward, the chair-maker?

Witness: No.

Mr. MANISTY: Nor had John Ward anything to do with the house in Ratcliff Highway?

Witness: No.

Agnes Pentland, examined by Mr. POLLOCK.

I was barmaid to Mr. Bloom for about two months before the fire, and had been at Saville House during that time. I had never perceived any escape of gas, nor experienced any difficulty in the lighting of the gas. I was there on the Monday and Tuesday when the company's men came. I was in the kitchen on the Tuesday when they came down to have some dinner. They remained there about half an hour. Nothing was said when I was there about not lighting the gas.

Mr. HAWKINS: I have nothing to ask you.

Lord Chief Baron POLLOCK: This evidence is to prove that there had been no smell of gas, and upon that there has been no cross-examination.

Mr. HAWKINS: I am not going to make any point of it, but rather of the contrary.

Mr. *John James Waite*, examined by Mr. MANISTY.

I am a gas engineer and fitter, and have been in business for twenty years. I have had a great deal of experience in removing meters and service-pipes from inside houses. It is a very common thing for the meter to belong to the gas company. It does not always happen that, when that is the case, the company do the repairs and alterations. It is not unusual; it depends upon the company's regulations. The meter is under the control of the company, and they have the right, if they think fit, of removing it.

Mr. MANISTY: You say you have had a good deal of experience in removing meters where gas is used in a house; what do you do in such cases with regard to shutting off the gas?

Witness: That would be subject to circumstances.

Mr. MANISTY: What would be the ordinary and proper mode of leaving the inlet and outlet pipes?

Witness: If the meter was taken away, and the pipes were left, of course the main-tap would be stopped off, so that the gas could not be used.

Mr. MANISTY: Suppose the gas was to be used again, what provision do you make in the meantime?

Witness: If they want to burn gas when the meter is away, a temporary connexion is made till another meter is brought.

Mr. MANISTY: Would that be by a pipe?

Witness: A lead pipe and union to the inlet and outlet pipe.

Mr. MANISTY: Are those kinds of connecting-pipes usually kept by gas companies?

Lord Chief Baron POLLOCK: The complaint is not that there was a discontinuance of the gas.

Mr. MANISTY: No, my lord; it is only to show what is the common mode adopted.

Mr. HAWKINS: I shall not dispute that there should be a connecting-pipe, if the gas is to be used.

Lord Chief Baron POLLOCK: Then the gas company would have no control over the burning at all?

Mr. MANISTY (to witness): Suppose the meter is taken away, and a connecting-pipe is put there, how can the gas company arrive at a reasonable estimate of the quantity of gas used in the meantime?

Lord Chief Baron POLLOCK: They can only go by what was used before.

Witness: By the first night's consumption after the meter is fixed.

Lord Chief Baron POLLOCK: That would be a mere guess.

Mr. MANISTY: That is how, when they come back with the meter, they tell what has been used in the meantime.

Lord Chief Baron POLLOCK: If the consumption were the same on all occasions. But all this has nothing to do with the case. This was not a discontinuance of the gas.

Mr. MANISTY (to witness): Supposing the meter had been taken away, and the gas company assume that the gas will not be used till another meter is brought, what then should they do?

Lord Chief Baron POLLOCK: That is not a question for him at all.

Mr. MANISTY: He is in the habit of doing it.

Lord Chief Baron POLLOCK: I dare say he may be. If you want to stop it altogether there are a thousand ways in which it may be done. If the meter is to be put on again in the course of a few days the question is a very different one. If you want to ask whether it was right or wrong to do as they did here that is a question for the jury, and not for this witness.

Mr. MANISTY: I do not ask whether it was right or wrong, but what is usually done.

Witness: To put an iron cap on, or to stop it in the street.

Lord Chief Baron POLLOCK: Or stop it in any way that is convenient and certain.

Witness: There are only those two ways.

Lord Chief Baron POLLOCK: I should have thought if the leaden pipe had been hammered together and turned over that would have done just as well.

Witness: Yes; but they would not take that trouble, and it would entail a new piece of pipe when the meter was brought again.

Lord Chief Baron POLLOCK: Supposing they had turned the cock, and taken the key away?

Witness: That would have done.

Lord Chief Baron POLLOCK: If they had done that would there have been any occasion to do anything more?

Witness: Not if the parties in the house were informed of it, because a pair of pincers would turn it on again.

Mr. MANISTY: Another way is to put on an iron cap?

Lord Chief Baron POLLOCK: He does not say so.

Mr. MANISTY: May I ask whether it is the usual way?

Lord Chief Baron POLLOCK: You may ask whether it is usual, but I dare say he will tell you there are other ways.

Witness: The usual way is to be ruled by circumstances. If the meter is taken away in the morning to be brought back at night a cork would be put in. If it was not to be used for a few days an iron cap would be put on. That is an ordinary and usual way.

Mr. HAWKINS (in cross-examination): Where are you from?

Witness: Camomile Street.

Mr. MANISTY: I will take your lordship's opinion upon this. We know what the defendants are going to say. I was about to ask the witness whether it would be proper and prudent.

Lord Chief Baron POLLOCK: I cannot allow that question to be put. It is quite plain there is no mystery in the matter at all, nor do you want the opinion of persons connected with gas-works respecting it. It is quite sufficient if they made it safe; that they were bound to do; they might do it in any way. They might squeeze the leaden pipe together and turn it down. He has said if the gas-meter is to be restored soon a bung may be put into the pipe, but if the meter is to be away for some considerable time, then he would unscrew it at the union and stop it, which is a very different thing from putting a cap on.

Mr. MANISTY: That is one way.

Lord Chief Baron POLLOCK: Any way that makes it safe will do, but there is no peculiar technical way of doing it.

Mr. MANISTY: This is somewhat of an anticipation of what is going to be said on the other side.

Lord Chief Baron POLLOCK: I can anticipate what is going to be said on the other side. I could not for a long time, but I do now.

Mr. MANISTY: I am going to anticipate it by asking whether or not, if the meter be taken away and not brought back for several days, it is safe and prudent——

Lord Chief Baron POLLOCK: I do not think that is a question he ought to answer. You may ask him any question connected with his trade.

Mr. MANISTY: This is his business.

Lord Chief Baron POLLOCK: No. This attempt to make a case by skilled witnesses is one of the vices of modern times. The jury are just as good judges; they know how the gas is connected with the premises. The real question is whether these men did their duty; and of that the jury are to judge, not the witnesses.

Mr. MANISTY: Is it not a proper question to ask the witness, whose business it is to remove meters and leave pipes in a position of safety, whether this would be a proper and safe mode?

Lord Chief Baron POLLOCK: Certainly not. It is putting him in the place of the jury. I tell you distinctly and broadly there is a modern practice of substituting for the jury what people are pleased to call "skilled witnesses," which I cannot conceive is right.

Mr. MANISTY: Then I beg your lordship to take notice that I proposed to ask the question.

Lord Chief Baron POLLOCK: Oh, yes—whether it is proper and right. If you mean to contend that it was wrong to leave the key in so that it might be disturbed by any one in the house, that is not a question for him.

Mr. MANISTY: No; I was going to put it whether it was prudent to leave it with the key hanging there and a bung in the pipe.

Lord Chief Baron POLLOCK: I think that is not a question for him to answer. I think that is for the jury to say.

Cross-examined by Mr. HAWKINS: If the meter is to be taken away altogether, there must be some permanent stopping. If not, a cork that will effectually keep the gas from coming out is sufficient. Putting a bung in is a very common practice for a temporary purpose. Of course the bung must be made sound. It is common to put white lead upon it. It would depend upon whether the cork were leaky if it would then be safer. The cork itself would be tight if it were sound. It would be perfectly safe if no one took it out.

Re-examined by Mr. MANISTY: The lead pipe above the tap would have a tendency to turn over when the meter was taken away, and, if the cork did not fit, it would be liable to fall out.

Lord Chief Baron POLLOCK: Did the pipe turn down?

Mr. MANISTY: We cannot tell.

Lord Chief Baron POLLOCK: I thought the man saw the mouth of the pipe when he put the candle down.

Mr. MANISTY: It must be so.

Witness: When the meter was taken away, the leaden pipe would turn over.

Lord Chief Baron POLLOCK: It is very remarkable that the man who had a ladder to go up to the place, which was so high that he had to put the candle on a shelf, never said that the pipe was altered the least in the world.

Re-examination continued: The service-pipe is bent over in order to enter the meter at the top, so that, when the meter was taken away, the mouth of the pipe would be downwards; so that, if a cork had been put in which did not fit tightly, it might come out with the pressure of the gas from the inside.

Mr. MANISTY: Would it be a workmanlike thing to leave it so?

Lord Chief Baron POLLOCK: That does not arise out of the cross-examination.

SATURDAY, DEC. 9.

Mr. POLLOCK said he now proposed to read the material interrogatories which had been delivered in the action to be answered by the defendants. The earlier ones referred merely to the position of the house, and the fact of the supply of gas, &c., to it by the defendants, which were admitted. The sixth interrogatory was—"What supply or service-pipes of gas were there from the main of the defendants company into and in Saville House on the 28th of February, 1865, and how long respectively had the same been laid on?" The reply was—"There were six service-pipes from the defendants mains to the building. Such service-pipes were laid on by the Equitable Company prior to the transfer to the defendants company." The seventh interrogatory was—"What was the size or diameter of the main pipe of the defendants company under the road or foot pavement in front of Saville House, with which the supply or service pipe or pipes to Saville House were connected?" Answer—"The diameter of the mains of the defendants company in the roadway were one 6-inch and one 5-inch main." The eighth interrogatory was—"What is the size in inches or otherwise of the diameter of the service or supply pipe or pipes respectively mentioned or referred to in the sixth interrogatory, and how far from the south side of the front or outer wall of Saville House did such supply or service pipe or pipes extend into Saville House, and in what directions were they placed?" Answer—"The diameter of the service-pipes were respectively—To the Imperial Music Hall, one 2-inch, one 1½-inch, and one 1-inch; to Carl Bloom, one 2-inch; to Smith, one 1½-inch; to Ward, one 1-inch; and all such service-pipes terminated on the outside of the building." [The reply then gave the relative positions of the service-pipes.] 9th—"Were not the said service or supply pipe or pipes on the 27th and 28th of February, 1865 the property of the defendants company, and under their sole control and management?" Answer—"The said service or supply pipes on the 27th and 28th of February, 1865, were the property of the defendants, and under their control and management on the outside of the said building." The next inquiries related to the number and sizes of the several meters on the premises, and whether they were not under the control of and kept in repair by the company.

Lord Chief Baron POLLOCK said he had already got all this down upon his notes.

Mr. HAWKINS said the company had never disputed that the meters belonged to them.

Mr. POLLOCK continued to read the interrogatories, and Mr. HOLLAND the answers, the substance of which was that the meters generally, including the one on the right hand of the entrance passage on the ground floor of Saville House were regularly inspected, the date of the last inspection being the 3rd of September, 1864, which inspection was made by the

defendants inspector, Cazally; that all defects discovered in service-pipes on inspection were entered in the complaint-book of the surveyor of mains, and all defects in meters in the gas-fitters diary. That on the 27th of February, 1865, the meter last referred to was inspected by Cazally, and was then found to be in good condition; that it was taken down on the following day by a man named Downs, by Cazally's instructions, for the purpose of having a 30-light meter supplied in its place; that the meter was taken down by unscrewing the union-joints of the meter which were attached to the gas-pipes, and when taken down corks were inserted into the inlet and outlet chambers of the meter by the defendants gas-fitter in the presence of their inspector, and that it was afterwards removed to Bloom's cellar; that after the removal of the meter no steps were taken by the defendants servants or workmen to continue the supply of gas to that part of the premises; that the usual mode adopted for securing the service-pipe leading from the main to the meter, in order to prevent an escape of gas, is to close the main cock, and fasten up the end of the pipe conveying the gas to the meter; that the supply on this occasion was securely stopped off by closing the main cock in the tenants fittings, about 6 feet below the meter, and driving a bung, covered with white lead and grease, securely into the brass inlet-joint to which the meter was previously attached.

Mr. *C. E. Beach*, examined by Mr. MANISTY.

I have been in business as a gas-fitter for 26 years, and have had a large experience in the removal of meters.

Mr. MANISTY: Now I propose to put a series of questions, which I submit to your lordship are proper to be put.

Lord Chief Baron POLLOCK: If you mean to substitute this person for the jury under the notion that he is a skilled witness, I will not permit it.

Mr. MANISTY: I call him a practical witness.

Lord Chief Baron POLLOCK: I do not know what the question you are about to propose is. It is no use taking up time in proving what everybody knows. There is no doubt if a pipe is cut in two for the purpose of carrying away the meter, care ought to be taken that the gas does not escape. We do not want a gas-fitter to tell us how to do that.

Mr. MANISTY: With great submission, I would say we have heard the answer of the defendants manager to the interrogatory that what they did was the proper thing to do, and we are going to prove that, according to the opinion of practical men, it is not a safe thing to do.

Lord Chief Baron POLLOCK: If you make the question whether the mode they adopted is not effective, and would fail, it is quite obvious that you cannot put it. From the mode in which you introduce these witnesses, you are attempting, though I dare say you do not intend it, to substitute them for the jury. That is the effect of it, and it is so much the practice in modern times, that I am disposed to watch very carefully any attempt to interfere with the province of the jury, and to dictate to them what their verdict should be by the means of skilled witnesses. If it were a matter about which the public at large know nothing, generally speaking, as, for example, a question of chemistry, or of anatomy, or physiology, about which people may be ignorant, you must have a witness to inform them, but in such a case as drawing a cork out of a bottle, or putting a cork into one, I should not think any jury would require a witness to speak as to the mode of doing it.

Mr. KARSLAKE referred to the case of *Blenkiron v. the Great Central Gas Company*, which was tried at Guildhall, before the Lord Chief Justice of the Queen's Bench. There a gas-main passed under the pavement close to the house of the plaintiff, and almost on a level with the area windows. The gas company wanted to insert a service-pipe into that main, and cut a hole for the purpose. The consequence was, that the gas escaped into the basement story of the house, an explosion took place, and the house was burned down. Upon the trial a large body of evidence was called as to the usual and proper mode of proceeding under the circumstances.

Lord Chief Baron POLLOCK: That is the very thing I object to, and as far as I can I will not allow it. State what is the effect of any particular mode, but do not substitute the opinion of a witness for that of the jury as to what is proper.

Mr. KARSLAKE said in the case he had referred to, the Lord Chief Justice remarked that what was customary and ordinary in a particular trade was a question for the jury when the issue was negligence or no negligence.

Lord Chief Baron POLLOCK said the plaintiff's own witness (Waite) said that a bung was sufficient in this case if it were placed tightly in the pipe.

Mr. KARSLAKE: With some qualification.

Lord Chief Baron POLLOCK: No; not at all. A cork, he said, would make it safe if the cork were sound. If the meter is to be taken away altogether, the gas should be stopped altogether; if it is to be replaced, then a bung is sufficient if it is tight. I suppose that would be admitted.

Mr. KARSLAKE: What we say is, that if the meter is to be taken away for several days, as was the case here, it is not an ordinary and workmanlike way to stop the gas by simply putting a bung in the pipe which is hanging down.

Lord Chief Baron POLLOCK: But Mr. Waite said it is.

Mr. KARSLAKE: With great submission, I say it is not. At all events, I submit that evidence upon the subject ought to be given. It is evident that if a bung is only put in it may easily fall out.

Lord Chief Baron POLLOCK: Well, then, if it may easily fall out, you do not want evidence to prove that it may.

Mr. KARSLAKE: But we want to give the evidence of persons in the trade to show that this is not a workmanlike way.

Lord Chief Baron POLLOCK: Your own witness, Mr. Waite, says it is.

Mr. MANISTY (to witness): When a meter is taken away not to be replaced for several days, would it in your judgment be a reasonable or proper course to leave the pipe with a bung covered with white lead and grease driven securely into the brass inlet-joint to which the meter was previously attached? That is taking the words of their answer.

Lord Chief Baron POLLOCK: But, then, the gas was turned off besides.

Mr. MANISTY: And the key left hanging.

Lord Chief Baron POLLOCK: This witness has nothing to do with the key.

Mr. MANISTY: In the first place, may I ask, is not this a proper question?

Lord Chief Baron POLLOCK: If your case is that leaving the key in was the cause of the explosion it is quite superfluous. It appears to me that the object of the plaintiff is to impute carelessness by leaving the key in.

Mr. MANISTY: Not that only.

Mr. KARSLAKE: Mr. Bovill said afterwards that if a bung was put in it would be enough.

Lord Chief Baron POLLOCK: But then you say there was no bung in.

Mr. MANISTY: We found our evidence upon that which they state in their case. (To witness:) If the meter is taken away, and is not to be replaced for several days, would it in your judgment be a reasonable and proper mode of leaving the pipe to put a bung into it, covered with white lead and grease, at the brass inlet-joint to which the meter had been previously attached?

Witness: It would not be a proper one.

Mr. MANISTY: Is there any usual or ordinary practice in such a case?

Witness: There is.

Lord Chief Baron POLLOCK: Do you mean a universal practice?

Witness: A universal practice.

Mr. MANISTY: What is the course which you say is universal in such cases?

Witness: There are iron caps of various sizes, and one of a proper size should be screwed on to the main cock.

Cross-examined by Mr. HAWKINS: To place a bung in would not be a proper method, because the bung would not be sound. Bungs are never used in any case, except there is wash-leather or something else round them. I have never myself adopted that method of securing a pipe. If I were removing a meter for a couple of hours only, I should not use an iron cap. In that case I should turn the gas off at the main cock, and take away the key. I should never give the key to the owner of the premises, and say, "Don't turn on the gas."

Mr. HAWKINS: Is there a universal practice as to that?

Lord Chief Baron POLLOCK: That is not a question of gas-fitting.

Cross-examination continued: If I took away the main cock key, I should put nothing at the end of the pipe when it was only for an hour or two. If it were for half-a-dozen hours I should cap it off. I say you cannot drive a bung covered with white lead and grease in tightly. You do not drive it into the pipe at all, but into the brass lining of the union, and that not being tapered you cannot make it tight. No ordinary pressure of gas would force it out if it were driven in with a hammer.

Lord Chief Baron POLLOCK: If a bung cannot be sound, there must be millions of wine spoiling in London. I am very sorry to hear it.

Mr. HAWKINS: If you can get a sound bung and drive it in, the pressure of gas will not drive it out?

Witness: Used bungs are not sound; the act of taking them out makes them unsound. This was a used bung.

Mr. HAWKINS: But I suppose you could get an unused bung that is sound?

Witness: Possibly you might.

Mr. HAWKINS: There is such a thing, then?

Witness: Doubtless.

Mr. HAWKINS: What is it that makes the bung unsound?

Witness: It is porous. [Mr. Hawkins handed a bung to witness]. I call this an unsound bung. Bungs are different to wine corks, and in practice they are never used but with something round them. A brewer never uses them except with something round them.

The bung produced was handed to the learned judge, who, having examined it, passed it to the jury, remarking ironically, "Gentlemen, this is an unsound bung."

Mr. HAWKINS (to witness): Supposing that bung were driven as tightly as possible into the pipe, how many feet of gas could issue through that bung in the course of six weeks. Take it at so much in an hour, then multiply by 24, and then by 42. You are a scientific man—would a foot of gas get through that bung in 24 hours if it had no wash-leather round it?

Witness: About that; there would be a slight leakage.

Mr. HAWKINS: What is a slight leakage?

Witness: Possibly a foot of gas in some four or five hours.

Mr. HAWKINS: Then through this "porous" bung a foot of gas would cape in four hours, but through a sound bung, how much?

Witness: None.

Mr. HAWKINS: Then, of course, I need hardly say that a foot of gas escaping in four hours would not be fraught with a great deal of danger?

Witness: It would be of no moment.

Mr. HAWKINS: Then why would not this bung do?

Lord Chief Baron POLLOCK: It would make a smell, you know.

Mr. HAWKINS: Not much of that, for it would be escaping so very gradually, and in a public building too. But putting aside the question of smell, why would not that do?

Witness: Because in practice you cannot make that bung sound.

Lord Chief Baron POLLOCK: Will it not prevent fire though it would not prevent stink?

Witness: It would prevent fire.

Mr. MANISTY (handing an iron cap to witness): Is this the sort of cap you use?

Lord Chief Baron POLLOCK: This does not arise out of the cross-examination. The question of what a gas-fitter would do to prevent a smell, would have much to do if this were a complaint that the premises had been made less wholesome; but in the case of fire, the care and prudence of a man to keep any particle of gas from escaping, has nothing to do with it.

Mr. *James T. Pennell*, examined by Mr. KARSLAKE.

I am a gas-fitter, and have been so for over thirty years. I have had great experience in the trade. I assisted in fitting up the Houses of Parliament, and have been engaged in other large buildings. In the course of my business I have had from time to time to remove a great number of meters. When the meter is to be away for some days, the ordinary course is to unscrew it from the service-pipe above the main cock, and put an iron cap upon the inlet of that pipe. Above the main cock the service-pipe is usually made of lead.

Mr. HAWKINS: I object to his saying what it is usually made of; the question is what this was made of.

Witness: The inlet and outlet pipe of the meter are always made of lead.

Several questions were put as to the position of the pipes, as shown upon the model, upon which,

Lord Chief Baron POLLOCK said: I cannot help observing that the whole of this evidence relates, not to the caution necessary upon the removal of a meter to prevent fire, but to prevent stink.

Mr. KARSLAKE: I am not using it in that sense.

Lord Chief Baron POLLOCK: You may not be, but the last witness said the only mischief of the bung would be to let out some portion of gas which, with regard to danger, would amount to nothing.

Mr. KARSLAKE: The immediate consequence of it might not be so. What I propose to ask is this—where there is a main cock, as in this case, what is the ordinary and workmanlike mode of stopping the gas?

Lord Chief Baron POLLOCK: The evidence does not touch the question of danger. It seems to me a waste of time. I think the evidence is that a number of persons to prevent a stink would adopt one mode of doing it, and the witnesses say at the same time that though your mode might not prevent stink it would be safe, and there would be no danger from fire; the evidence of this witness has nothing to do with whether the bung would come out.

Mr. KARSLAKE: The bung is not used by them, because they say the ordinary way is to put on a cap.

Lord Chief Baron POLLOCK: They use this cap to prevent the possible escape of gas to any amount whatever.

Mr. KARSLAKE: Because if it escapes in small quantities it is a nuisance, and if in large quantities it will set the house on fire, whereas there is a well-known appliance which is screwing on over the top of the pipe a cap which prevents any escape and any danger.

Lord Chief Baron POLLOCK: I cannot prevent your giving the evidence, but it appears to me not *ad rem*.

Mr. MANISTY: I think it is a matter which will apply.

Lord Chief Baron POLLOCK: It strikes me that if this is negligence at all, it is no sort of negligence for which they are responsible.

Mr. MANISTY: The question now is whether the evidence is admissible. I am not leading in this case, but I think it will apply.

Mr. KARSLAKE (handing to witness a half union): When you have unscrewed the service-pipe above the main cock, does this represent the socket into which the cap would be screwed?

Witness: That is the other half of the union on the inlet.

Mr. KARSLAKE: When you have unscrewed the inlet-pipe, as you have described, what is the ordinary course adopted by you, and as far as you know by others, for the purpose of securing the pipe?

Witness: By taking this half off and putting on an iron cap over it. We generally lead it, and then with a pair of tongs screw it up tight.

Lord Chief Baron POLLOCK: And another pair of tongs would unscrew it.

Witness: Yes, but it is only the trade use them.

Mr. KARSLAKE: Is that, in your experience, the mode always adopted to stop off the gas, where you take away the meter?

Witness: Yes.

Lord Chief Baron POLLOCK: That is where you take away the meter for several days?

Witness: Yes. In fact, it is unsafe to leave the meter under any circumstances unless there is some precaution to screw up this plug.

Mr. KARSLAKE: Where you take a meter away for some days, do you do anything with the key of the cock as well as screw on the cap?

Witness: If this cap is on it signifies not whether you take the key away or leave it.

Lord Chief Baron POLLOCK: It appears to me that you might as well call a gunsmith to say that they do not always keep firearms loaded.

Mr. KARSLAKE: Supposing the service-pipe to be left on, is it in your experience a usual mode for securing that pipe to put on a bung?

Lord Chief Baron POLLOCK: I dare say he never knew of such a case at all. He said that the other was the mode, and if so this cannot be.

Mr. KARSLAKE: I ask is it a usual and proper mode of securing the pipe?

Lord Chief Baron POLLOCK: Not "proper." I will not have it.

Mr. KARSLAKE: Is it usual to put merely a bung into the inlet-pipe covered with grease or anything else?

Witness: No, it is not. If a cork were driven inside, there is a burr which would be likely to peel it as it went in.

Cross-examined by Mr. HAWKINS: If there was any roughness in the pipe, would it not be likely to hold it tighter?

Witness: I think not.

A JUROR: There is a small rim inside?

Witness: Yes. [Mr. Hawkins handed a meter union joint to witness to examine.] There is not one in a thousand made like this.

Mr. HAWKINS: Would you call this rough?

Witness: No, certainly not; there is not one in a thousand which is turned so smooth.

Mr. HAWKINS: Would an instrument like this [a pair of gas pincers] unscrew your cap?

Witness: Yes.

Mr. HAWKINS: Supposing any one was fraudulent enough to want to steal the gas, this would enable him to unscrew and take that cap off?

Witness: Yes, it would.

Mr. HAWKINS: Now, I only want to ask you one or two questions. Have you never known of a bung being used?

Witness: No, I do not know that ever I did; not on the inlet of the meter in this way.

Mr. HAWKINS: If you turn off the tap, of course no escape of gas would occur. According to your account, using your iron cap it does not matter whether the gas is turned on or off?

Witness: No.

Mr. HAWKINS: What do you put the iron cap on for?

Witness: To prevent the escape of gas.

Mr. HAWKINS: Then anything which would prevent the escape of gas, would answer the purpose? Supposing you get a sound cork, that would be as good as your cap?

Witness: There is no question if a sound cork was properly put in it would be secure.

Mr. HAWKINS: Just as secure as your cap?

Witness: No.

Mr. HAWKINS: Why not?

Witness: Because one would resist pressure and the other would not.

Mr. HAWKINS: What pressure of gas would drive a cork out?

Witness: No ordinary pressure of gas.

Mr. HAWKINS: Then what pressure would drive it out?

Witness: There is no question that if a cock were properly driven in, a cork cut out like that, it would be more in the form of a wedge in those circumstances.

Mr. HAWKINS: Of course a cap could be removed with proper instruments?

Witness: It could.

Mr. HAWKINS: And a man, though he might take a few more seconds over it, could do it as readily as he would a cork?

Witness: Yes; what one man can do another can.

Re-examined by Mr. KARSLAKE: Though a cork might stop the gas, it could be more easily removed than a cap. It would be far from easy to remove a cap which had been screwed on with these tongs. It would require the same sort of tongs as were employed to put it on. These are the tongs usually carried by gas-fitters for the purpose.

Mr. *Thos. South*, examined by Mr. MANISTY.

I am a master gas-fitter, and have been so for about ten years. I am well acquainted with the ordinary usage when a meter is removed.

Lord Chief Baron POLLOCK: How many gas-fitters do you mean to call?

Mr. MANISTY: Not many.

Lord Chief Baron POLLOCK: Not many? I will not have another.

Mr. MANISTY: Your lordship will hear this one.

Lord Chief Baron POLLOCK: It is one of the abominations of modern cases to multiply skilled witnesses. I believe the Master only allows three. If three gentlemen of experience are not sufficient to prove what is the habit of gas-fitters, twenty are not enough.

The FOREMAN of the JURY: We were quite satisfied on this point hours ago. This is only repetition.

Lord Chief Baron POLLOCK: I think all that can be known on the subsubject, we have had from the three witnesses that have been examined.

FOREMAN: Quite so, my lord.

Mr. KARSLAKE, as a matter of form, called for Mr. Bloom. He then said: Mr. Bloom has gone to Germany, and I propose to prove that we have telegraphed for the purpose of getting him here; lest any observations should be made respecting his absence.

Mr. HAWKINS: You must prove where he is.

Lord Chief Baron POLLOCK: When did you telegraph?

Mr. KARSLAKE: I do not know; as soon as his address was obtained.

After some conversation, the learned judge refused to receive any evidence on the point.

Mr. MANISTY said this was the case for the plaintiff.

Mr. HAWKINS said he did not propose to occupy much time in addressing the jury on behalf the defendants, for he believed that when he had given a short sublime of the evidence and called three or four witnesses, a totally different version of the matter would be before them to that which hitherto had been presented. He was very confident that when this was done, the jury would say there was not a particle of evidence upon which they could be asked to find a verdict against the gas company on the ground that they had been guilty of neglect, and that they would be satisfied there was no pretence for saying that this catastrophe had been brought about of any act of theirs. The complaint which in substance had been made against the gas company was this—that they had so negligently and carelessly conducted themselves in the supply of gas to that house in Leicester Square that an escape took place, became ignited, and was followed by an explosion, doing the damage alleged in the declaration. And as the learned judge had observed, the question was not whether everything was done by the gas campany which could prevent a single foot of gas from escaping, and so cause an unpleasant odour in the house (though upon that point he would satisfy the jury that everything was done by the company); but the question was whether by their negligence they permitted gas to escape in such quantities that it became ignited, exploded, and did damage to these premises. His friend, Mr. Bovill, in opening the case, seemed to feel that he laboured under considerable disadvantage—a disadvantage of this character—the not knowing the nature of the case he was endeavouring to prove. For he said, in the first place, that the meter had been removed not for the purpose of being replaced by a smaller one, but because it had been discovered that it was defective, and in order to prevent the escape of gas that would otherwise have occurred. He (Mr. Hawkins) would show that this was utterly and entirely fallacious, and that there was no pretence whatever for saying there had been any previous escape of gas. There was a pretence for saying that the fittings of the tenant for the supply to the billiard-room were defective, but it had never been alleged by Bloom, nor by any of the gas company's men, that there was anything the matter with the meter. After it was taken down it was carefully examined, and proved to be in perfect working order, and it was only removed to be replaced by a smaller meter, because Bloom himself said he should not require one for more than 30 lights. His friend, Mr. Bovill, stated that it would take a week or a fortnight to get the new meter ready, and then he went on to say that no precaution at all was used in the meantime to prevent an escape of gas, and that all that was done was to turn off the main tap to prevent the gas reaching the spot where the meter had been. And his learned friend added these words:—"If," he said, "they had but driven a bung into the mouth of the inlet-pipe an explosion could not have taken place." He was instructed to state that, and he stated it most distinctly—and, indeed, according to the evidence of Mr. Beach, it was quite clear that if a bung was driven in there could be no explosion, because even with an unsound bung, that witness estimated the escape of gas would, at the outside, have been only one foot in six hours, or four feet in the twenty-four. But, now, look at the case as described by the witnesses for the plaintiff. The gas company's servants, it appeared, were on the premises on the 27th of February, by appointment, for the purpose of having a contract signed, and a deposit paid for the meter which was to be used in the billiard-room. It was suggested then that there had been an escape of gas, for the company's servants observed that about 40,000 cubic feet of gas had been used, and not accounted for. Larven, who was Bloom's servant, suggested that that was by reason of the defects of the meter, and that to remedy it the meter was taken down, to be replaced in the course of seven or eight days. When the meter was taken down, he said he was in and out of the billiard-room, into the passage where the meter stood, while the company's men were there, but he did not say there was no bung placed in the pipe. He (Mr. Hawkins) called attention to this particularly, because he should show that there was. All that Larven said was that he did not see the bung placed there; but he did say that the gas was turned off, and the key taken off the main tap, and hung up somewhere behind a door in the neighbourhood. He left shortly afterwards, in company with Bloom, his master, and went down to Ratcliff Highway, where Bloom kept a sort of singing and dancing shop, and they did not return till after the explosion, therefore he knew nothing of what occurred. But, now, see what happened in the afternoon of that day, according to the testimony of the plaintiff's own witnesses. When it got towards dark they wanted gas in the billiard-room. It seemed that Bloom was rather irregular in the management of his gas, sometimes one person, and sometimes another having to attend to it. On this occasion, a man who had hired the billiard-room the night before went out personally to turn it on, not knowing, as he said, that the meter had been removed. First of all, Klassen went to the tap, while the man who had taken the billiard-room tried to light the chandelier. These two persons having tried to do it, but not succeeding, they called upon Rose, who had had the management of the gas before, to come and assist them. Whether that man had been drinking or not that afternoon did not appear, though if so it might account for the gross carelessness he displayed. He knew what gas was, and he knew perfectly well that the meter had been taken away, and that unless there had been a piece of connecting-pipe between the inlet and outlet service, as soon as the cock was turned on there would be a large flow of gas from the inlet, which must escape into the house, and he knew that if that connecting-pipe had been put up the chandelier would have lighted in the usual way. It appeared to him (Mr. Hawkins) that this man displayed the grossest negligence, and that the explosion arose entirely from his careless conduct. He himself had had notice that both the billiard man and Klassen had made the experiment by turning the tap to light the

chandelier; he knew perfectly well the meter had been removed, and that unless a connexion had been made there would be a large flow of gas on the tap being turned, which when a lighted candle was brought near must lead to considerable danger. He tried himself the same experiment of turning on the tap, and found the chandelier would not light; and what did he then do? He went up the steps with a lighted candle for the purpose of ascertaining whether there had been a connecting-pipe put on or not. Good heavens! he knew where the meter had been, but instead of taking the precaution of first turning off the gas, and while it was actually flowing through the tap which he himself had turned on, he carried a lighted candle to the very spot, for the purpose, as he himself said, of seeing whether there was a connecting-pipe or not. Now, he (Mr. Hawkins) submitted that if there were no other evidence, this was sufficient to prove that the fire originated in the grossest negligence on the part of Bloom's own servant. And even if the plaintiff could have charged negligence upon the servants of the gas company to the full extent he desired, the company would not be liable, because the accident arose not from something they had done, but from the imprudence of the men in Bloom's employ.

Lord Chief Baron POLLOCK: I am speculating with considerable embarrassment whether it is a question of law or of fact where two persons contribute to an accident. I will assume that the company are bound to have their works in a certain state of order; but if another person interposes, and is the acting and the efficient cause of the mischief, whether that is a question of law or fact, at present I assure you I am in considerable doubt. We have so few cases in the books where there has been combined negligence. I am not aware of any case where one is the *causa causam*, and the other is the *sine quâ non*. Generally speaking, the law looks to the immediate cause, and not to the remote cause. Where a ship is destroyed by the perils of the sea, the underwriters are liable, and they cannot say there was some other remote cause which produced the loss. That might be true, but still if the immediate cause of the loss was the state of the sea, the underwriters are liable. I am, I assure you, speculating and considering with some little embarrassment what is the question I shall leave to the jury.

Mr. HAWKINS said he thought there would be no embarrassment when he came to deal with his own part of the case. He had felt it right as yet only to call attention to the plaintiff's case, and he submitted upon that, that the accident never could have occurred if the man Rose had conducted himself with the smallest particle of prudence. Knowing, as he did, that the meter had been removed, and that the inlet-pipe was open, and the tap turned on, it was the grossest act of negligence and carelessness to take a lighted candle to the spot. He would not trouble the court further on this point, but would state in a few words the precise effect of the evidence he proposed to call for the defendants. In doing so it was necessary for one minute to call their attention to the history of these premises from the beginning of 1864. A part of the establishment consisted of a billiard-room—with the rest he need not deal—which had been occupied by Roberts, the great billiard player, down to 1864. During his occupation he had used a 50-light meter, which was the one removed on the 28th of February last. Mr. Roberts left the premises in March, 1864, and upon the occasion of his leaving, such precautions were taken by the gas company, as were ordinarily taken to prevent a supply of gas continuing to pass through the meter. The meter, in the first place, was disconnected from the inlet pipe, and a quantity of tow was placed very firmly in it to arrest the passage of the gas, and prevent its being used by any one in the house, until some one else should enter into a contract for the supply. At the time this was done, in March, 1864, the register of the meter stood in round figures at 540,000 cubic feet, and it was supposed by the gas company that nobody had used that meter until the beginning of February in the present year. Bloom, the person whose name had been so often mentioned, became a tenant in the establishment towards the latter end of 1864, but the billiard-room was never occupied to the knowledge of the gas company since Roberts left it. Unquestionably, between the months of March and July, 1864, the gas had not been lighted; for in July the meter was examined, and the register was still found to stand at 540,000. After Bloom took the place, and when the gas company's inspector went, as was his duty periodically, to take stock of the 100-light meter which supplied the rest of the house, he saw Bloom, who told him that he should require gas for the billiard-room, which he had recently taken. He requested that some one might come down for the purpose of bringing the ordinary contract to be signed on such occasions, before gas is supplied, and to receive the deposit. On the 27th of February, the inspector Cazally and a Mr. Downs went together to Bloom's rooms and saw him. A contract for the supply of gas through the 50-light meter was then signed, and the usual deposit paid. This document was in itself a strong piece of corroboration of one part of the case—viz., that Bloom commenced his supply from that date. On that occasion the meter was looked to, and to the very great surprise of Cazally he found that instead of it standing at 540,000 feet, it stood at 585,000 feet, showing that there had been a consumption of 44,000 feet of gas during the time that the company believed they were supplying no gas at all. The whole of the internal fittings of the house, with the sole exception of the meter, belonged to the tenant, the property of the company in the pipes terminating at the outside walls of the house. Bloom said he could not account for the difference in the register of the meter, but suggested that there might have been an escape of gas, and he (Mr. Hawkins) believed he said he had smelt it. The state of the meter was taken on that day, and Bloom said inasmuch as he did not require to burn more than 30 lights, and the rent of a 30-light meter was less than that of a 50, he should like to have the smaller sized one fixed. Accordingly an arrangement was made that on the following day Cazally and Downs, his assistant—both very competent men for the discharge of their duty—should attend on the premises, and remove the 50-light meter, and supply its place with one for 30 lights. In order to see whether there really was an escape of gas, and to satisfy his mind on other matters which occurred to him, Cazally took the state of the meter again on that day, when he found that 500 feet more of gas had been consumed, which was all accounted for by Bloom on the ground of there being an escape. Cazally, who would be called, would state that he told Bloom distinctly that the meter would be removed, and that he could not have a supply of gas at all to the billiard-room until he got the fittings, which he stated were out of order, thoroughly looked to by his own gas-fitter. Bloom promised to have that done, and accordingly the meter was to be removed. Cazally directed Downs, the man who was assisting him, to get a ladder or pair of steps, which were placed up to the shelf where the meter stood, and the meter was disconnected from the pipes. Having been disconnected, the jury would have positive evidence—the distinct oath of Cazally—that a bung was procured, and according to the practice which he himself in thousands of instances had found to be perfectly efficient for the purpose, and according to a practice adopted not by this company only, but almost universally in the case of a temporary removal of a meter, this bung was inserted by Downs inside of the inlet-pipe, and hammered in as tight as he could hammer it, so that no pressure of gas could possibly force it out. That bung could not have found its way out except by the act of some person, and for a purpose best known to the person who did it. It could not have come out without hands, and without the wilful act of some one, probably with the object of making use of the gas. This inlet-pipe was in such a position that it could not be subject to the accidental interference of any one, for it was ten feet above the surface of the ground, and in the state he (Mr. Hawkins) had just described, it was left on the afternoon of the 28th of February. He would now call attention to a bit of evidence given on the part of the plaintiff, which seemed to him very strongly to support the probability of this statement. The jury would presently have the positive oaths of two men upon the subject—men who were well competent to discharge their duty—who would state that they did that which they were in the habit of doing probably every day of their lives, and who could have no object whatever in shirking their duty. To prove that they had at that time no great pressure upon them which required their presence elsewhere, he would remind the jury of the statement of Mr. Bovill in opening the case, that these men remained after they had taken down the meter to eat some pancakes. Mr. Bovill attempted to make a joke upon the subject, but all that he (Mr. Hawkins) could say about it was, that the joke was a remarkably flat one. Whether Mr. Bovill meant the jury to understand that the men who had been eating pancakes and drinking ginger beer were excited, or whether that in their eagerness to get down into the kitchen they did their work inefficiently, he could not tell; but his learned friend certainly introduced the pancakes with a gravity which did him infinite credit. It was a ridiculous thing enough to introduce pancakes into a case of this sort, but having been introduced, and it having been proved that the men remained half an hour in the kitchen for the purpose of eating them, he would take advantage of the circumstance to point out to the jury that at all events the men were not in any hurry to get away. Another circumstance, too, was proved by the plaintiff's own case—viz., that the men were so careful in taking down the meter to prevent even the nuisance of a smell of gas, that they actually got two bungs and placed them in the orifices of the meter where it had been disconnected from the inlet and outlet pipes. And he would submit that it was hardly likely they would be so particular to do this and yet omit the more important matter of stopping the inlet-pipe itself. The meter, which was afterwards taken into the cellar, had, up to that time, acted without fault, and the men left it in the cellar until such time as they should bring the 30-light meter to replace it. They went away from the premises somewhere about three o'clock in the afternoon, leaving there Bloom, Larven, and another man named Shike, who formed the third of the party which went in the chaise to Ratcliff Highway. But they also left behind them in the house a person whose wife was cook in the establishment—a person of the name of Latta, whom the plaintiffs had not called before the jury, though they knew perfectly well that he was in court. He (Mr. Hawkins) could understand very easily why they did not call him. He could understand too why they had taken so little pains to produce Bloom himself, and probably the jury would understand why when he told them that after the gas company's servants had left the premises Latta actually saw Bloom ascend the steps in the passage, and saw him remove the bung which the gas company's servants had placed in the pipe. It was a very common thing indeed for people who were disposed to act dishonestly towards gas companies to use a piece of flexible tubing to make a communication between the inlet and outlet pipes. He was only making a suggestion upon the matter, for he was not in a position to prove that in this case it was intended to be done; but when the jury came to think that in some way or other 44,000 cubic feet of gas had been used between the time the supply ceased to Roberts and the time when Bloom made an application to have a contract entered into, they would see that there was something remarkable in the case. Bloom himself, when endeavouring to account for the difference of 44,000 cubic feet of gas, said it was entirely owing to defects in the fittings. He was asked whether he had not burnt any gas himself which had passed through this meter, and he said he had not, except on one or two occasions in order to try how the chandelier would act. The company had since discovered that Bloom paid not one sixpence for the gas down to the time of the explosion, and that though he stated he had not used the gas, he did actually, in the month of December, 1864, or early in January, 1865, let the upper part of the billiard-room for the exhibition of a fat woman, and charged Mr. Pullman 10s. a week for the use of gas, which unquestionably he was stealing all the time. He (Mr. Hawkins) could, therefore, very well understand why Bloom was not called, and why his relative died so conveniently on the Continent on the eve of the trial; and he could understand why his learned friend (Mr. Karslake) proposed to prove that a telegram had been sent to some unknown place for him. But he could not understand why, if they were in earnest, the learned counsel for the plaintiff did not make application to the court to have the trial postponed for a week or ten days on the ground that they were deprived of the services of a material witness. In all probability they thought the less they had to do with Bloom the better, and that they stood a greater chance of success by relying upon the attractive appearance of Mrs. Bloom, and the tears of Mrs. Bloom, and the telegram to some unknown place in Germany, than if they put old Bloom in the box to give his account of the matter. On the previous day his learned friend, Mr. Manisty, in apparently the most serious tone, said he could not understand why questions were raised about Bloom's antecedents. "What," he said, "has it got to do with the case if he does keep an improper house in Ratcliff Highway?" Properly speaking, his connexion with the house at Ratcliff did not cause an explosion of gas in Leicester Square, but he (Mr. Hawkins) suggested that this was just the sort of man to play little tricks with gas if he could get it without paying for it. That was the only reason for introducing it. Now Bloom, having taken the cork out of the inlet-pipe, probably supposing that if he had allowed it to remain he might have some little difficulty in removing it afterwards, might have thought that he should return in time to put on his flexible tube before the supply of the evening was required. He (Mr. Hawkins) could not tell how this was, but it was certain that the bung having been removed, when the gas was required to be lighted, not days before, but on that very afternoon, after the attempt to turn on the gas, there was a complaint of an escape, and when a candle was handed up from the kitchen for the purpose of seeing whether the connexion had been put on or not, Rose was warned that he had better not take it near the place on account of the strong smell of gas. He did take the candle there, and the jury knew the result. He (Mr. Hawkins) would call before them a body of testimony, if needed, to show that the mode of fastening up the pipe, adopted by the defendants men, was perfectly safe, and that unless some person had fraudulently removed the bung it would have remained in its position, and no explosion could have taken place. He would show, too, that even if an iron cap had been

placed on the service, any person fraudulently disposed could have as easily removed that. If Bloom were minded to use the gas, he would have removed the cap as readily as the bung. But he would put aside altogether the question of using a cap, because, upon the showing of the plaintiff's own witnesses, if a bung alone was used no pressure of gas could force it out, and no explosion would take place. He should prove that a bung was used in the ordinary way in such cases, and that being so, he need not speculate as to what was Bloom's intention, but would submit that the defendants were clearly entitled to a verdict, on the ground that the accident which caused the fire was an accident arising not from the negligence of the company, but partly from the reckless conduct of Rose in taking a lighted candle to the place where he knew there was an escape of gas, and to the fraudulent removal by Bloom of the bung, which, but for him, would have been quite sufficient for the purpose of preventing an escape of gas.

Mr. *John Sewell*, examined by Mr. HANNEN.

I was formerly in the service of the Chartered Gas Company as an inpector. I was 33 years in their employ, and retired in July, 1864. Saville House was within my district. I was acquainted generally with the arrangements of pipes for the supply of gas to that house. A part of the premises was formerly occupied by Roberts as a billiard-room, and a saloon over it. That part was supplied with gas through two meters—one for 100 lights, and the other for 50. The billiard-room on the right hand was supplied from the 50-light meter. The company's main ran along the square at some feet distance from the front of the house, and their service pipes terminated at the entrance. The internal fittings were all the property of the tenant. [Witness described on the model the position of the pipes.] Roberts left in March, 1864. At that time the quantity of gas consumed, as registered on the 50-light meter, was 541,500 cubic feet, which he paid for. A man named King, who is since dead, was with me when I took the state of the meter at that time. The supply to Roberts having ceased, the gas was turned off at the main tap, and it was subsequently stopped off at the meter, by means of tow being placed in the inlet-pipe, which was screwed up again. Tow was also placed in the inlet of the meter, and the gas was turned off at the main cock. This being done, the gas cannot pass through until the tow is removed. This is the mode generally adopted when the meter is likely to be shortly required. I again took the state of the index of the meter on the 7th of April, and on the 9th of July, when it showed precisely the same consumption it had done in March. I did not see it after that. When a meter is taken away, we have in a great many instances, inserted a bung in the inlet-pipe, and always found it effectual in preventing the escape of gas. It is generally put in with grease and white lead, and if properly done, entirely cuts off the flow of gas. When the gas is not likely to be required for a considerable length of time, we use an iron cap. If I were cutting off the connexion between the service-pipe and the main, I should use one.

Cross-examined by Mr. MANISTY: We should not use a cap if the gas were not required for a week or ten days, but only in the case of a tenant ceasing altogether to burn gas. It is very easy to put on a cap, but it is not usual to do so.

By the COURT: I do not know the price of a bung or of a cap; there is no great difference in the cost of them. I should think a cap would cost the most. The company keep a number of caps in stock.

By Mr. MANISTY: I have seen a bung used scores of times. I cannot call to mind any case within the last twelve months of my inspectorship as I kept no record of them. I do not know the extent of supply which Roberts had on the 50-light meter. The company's pipes ceased at the outside of Saville House. It is not usual for them to be continued up to the top of the meter; it is so sometimes. When Roberts left the key of the main tap was taken off by our men. It was kept by the side on a shelf.

Re-examined by Mr. HANNEN: During my thirty years experience I have always found a bung efficient for the purpose. The key of the main tap belonged to the occupier of the house.

Mr. *William Cazally*, examined by Mr. HAWKINS.

I am the district inspector of the Chartered Gas Company in the district in which Saville House is situated. In September, 1864, Carl Bloom became occupier of part of the premises. He signed a contract for the use of the 100-light meter and down to the month of February last that was the only supply for which we had any agreement. A supply through the 50-light meter he said he should not require, as he had not taken that part of the premises. That was supposed by me to be the case until about a week before the 28th of that month. On the Saturday before the fire I attended to take the state of the 100-light meter. I saw Larven and he told me that Bloom required gas for lighting the billiard-room; I made an appointment to attend and receive a deposit on the Monday. I attended accordingly, and received from Bloom a deposit of £3 and his signature to a contract. I examined the state of the 50-light meter then, and found that it registered 584,500 cubic feet, which was about 43,000 feet more than when it was taken before. I told Bloom there had been a great deal of gas burnt, and he said he had not burnt it, and did not intend to pay for it. I told him I must look to my books to see if it had been properly taken. I did so and found it was correct. He said there must have been an escape somewhere, and wanted to make out that it was at the meter or in the fittings under the boards. I said he must have known if it were so, and that he must have his fittings examined. On the following day I called there, and met my man Downs, by appointment. We got a pair of steps to examine the meter, and found that since the previous examination 500 feet more of gas had passed through. The meter was quite sound, and there was no escape of gas from it. I told Bloom if he would get a competent man to examine his fittings, I would give him a supply of gas through that meter, but not till then, and if he did not know a fitter, I would recommend one. He said he should not want the gas till after the meter had been taken down. It was taken down that day and carefully examined. He said he should only want the gas one or two nights a week for his "International Club." I told him he could not have it for a day or two, and by that time he could have his fittings examined. Larven then proposed that they should have a smaller meter, and Bloom said it would do. Before the meter was taken down, I saw Downs turn off the gas at the main tap. He got a bung and covered it with some white lead that he brought with him, and some grease which he got from the kitchen. He pushed the bung into the orifice of the pipe, and drove it in with a hammer. Afterwards, he rubbed his hand over it to see that it was sound. To see that it was all right, I turned on the gas, and Downs lighted a match that he had in his pocket, and applied it all round the place where the bung had been inserted. I then turned off the gas, took away the key, and put it in a corner where I thought no one would find it. Sometimes we should be complained of for taking away the key, it not being our property. When we left the place that day, the gas was turned off, and the orifice of the pipe was properly stopped up, as we proved by trying it with a light afterwards. The course we adopted was the ordinary and common mode. We could not, from the position of the pipe at the union, have put a cap on it. The bung was quite as effectual. I afterwards had some pancakes, and ale with Larven. Bloom came into the room and Larven told him what we had done, and that he was not to turn the gas on, but to send for a fitter. The morning after the fire, I had a conversation with Larven. He said he thought the company did not know that the billiard-room lights came from that meter.

Cross-examined by Mr. MANISTY: I succeeded Mr. Sewell as inspector in July, 1864, and it was my duty to make myself acquainted with the pipes and meters in use. The 100-light meter which Bloom had did not supply the billiard-room overhead; it supplied the back part of the premises. The 50-light meter supplied one burner in the passage, and a small drop-light, with two or three burners. [Witness was asked several questions as to the position of and mode of supply to the various burners throughout the part of the premises occupied by Bloom.] I never saw the billiard-room in use down to the time of taking the contract for the 50-light meter. Bloom told me he was going to use it, but the last time I saw the room it was quite empty. There was no table in it until about a week before the 27th of February. When I told Bloom that 40,000 cubic feet of gas had been used, he at first said he had not burned any, and afterwards he said he had just lit the gas so as to try it. To do that the tow must have been taken out of the pipe. On the day the meter was taken down I examined his fittings upstairs. There were a number of brackets round the wall, and I considered they were not fixed in a proper way, and that they wanted repairing. They were loose, and most likely unsound, and I told him he should have a man to examine them. It would not have been safe to turn the gas on, and I did not know that the meter had been used till I saw the register. My man got the bung from the kitchen, and the grease too. He had some white lead with him, but it was not soft enough, and he had to get some more. When I left the key of the supply-tap was down at the back of the pipe, where I thought no one would find it. Larven was there at the time. I cannot say whether he saw me do it; he did not tell Bloom that I had hid the key. He told him that the gas was cut off, and the meter taken down, and that he would be supplied with a smaller meter, after the fitter had thoroughly examined his fittings, and said they were safe.

Re-examined by Mr. HAWKINS: I told Larven what had been done, and he repeated it to Bloom, partly in English and partly in German. When I found that 44,000 feet of gas had been consumed which we knew nothing about my suspicions were excited. I was determined the fittings should be looked to, that I might have time to see whether the gas had been used. I found some of the burners were not safe. I should not like to have had the gas in my place with the fittings in that state.

Mr. *Henry Downs*, examined by Mr. COLERIDGE.

I am one of the gas-fitters of the company. On the 27th of February last I went with the last witness to Saville House and saw Larven. I went with him to look at the fittings on the first floor. I examined those fittings because of the gas which had passed through the meter and was unaccounted for. Cazally told him that the fittings were in a very unsound state, and that he must have a practical fitter to put them in order, particularly those under the floor; and that until that was done they could not have any more gas. There was nothing said that day about removing the meter; the meter was removed on the Tuesday. Before doing so the gas was turned off at the main cock. The plaintiff's model does not show the true position of the meter. After taking down the meter, I enquired at the bar if they could give me a large bung; the man there offered me a large cork which I said was not large enough, as I wanted a bung 1½ inch in diameter. He said if I went down into the cellar he would show me some; I went down there and saw a great number on a shelf. I took three; with two of them I stopped up the inlet and outlet of the meter. I cut the third to as to fit into the inlet service-pipe. I had a box of white lead with me which had got rather hard, and I went into the kitchen for some grease to make it soft. Having done so, I smeared the bung over with it and forced the bung with my hand into the pipe. I then hammered it in and took some more white lead with which I covered the face of the bung so as to fill up the interstices. The inspector turned the gas on and I struck a match in the presence of Larven and tried all round the pipe to see whether it was secure. When I came down the steps I saw the main cock was turned off. The key Mr. Cazally put behind the pipe. The way we made the pipe secure is the ordinary mode of doing it. I have been in the gas-fitting line all my life. After this action was brought I was present—in the month of June or July last—at an experiment made with a bung fixed in this way to ascertain what amount of pressure it would bear; the experiment was made at the laboratory of the gas-works. The bung was put into the pipe with the finger and made tight with white lead. Very nearly 105/10ths pressure of gas was used, and it had no effect whatever upon it.

Lord Chief Baron POLLOCK: Is there ever that amount of pressure in the ordinary gas supply?

Witness: No, my lord; about 10/10ths or 12/10ths is the ordinary pressure.

By Mr. COLERIDGE: The pressure does not diminish by distance if it is an ascending pressure. An iron cap is not used where we only cut off the gas temporarily. We only use it when a tenant is leaving.

Cross-examined by Mr. KARSLAKE: At times we carry these caps with us when we go to do a job. We take about two or three of each sort with us. I knew this meter was to be removed on the Tuesday, and that we were to bring another on the Wednesday, providing the fittings were put into good working order. Cazally told Larven so in the passage, on the Tuesday. We went to Saville House about one o'clock that day, and left about three o'clock. It took from a quarter to half an hour to remove the meter.

Mr. KARSLAKE: And the rest of the time I suppose you were engaged in eating pancakes and playing cards?

Witness: No; I did not play at anything. I was examining the fittings upstairs. I was about half an hour at dinner.

Lord Chief Baron POLLOCK: He was a good Christian and ate his pancakes.

Mr. HAWKINS: I should have thought it impossible for a man to keep on for three hours eating pancakes.

Cross-examination continued: There were about 30 single-bracket lights in the saloon. I took up the floor of the room with a chisel and hammer to examine the fittings. Larven was present at the time. I did not do anything to the pipes under the boards. [Witness was further cross-examined at some length on all the points deposed to by Cazally, whose evidence he corroborated.]

Mr. *Jas. Faraday*, examined by Mr. HANNEN.

I am a member of the firm of Faraday and Son, gas engineers. We have a rather extensive business. We are engineers to the Athenæum, the United Service, and four other clubs. When a meter is removed it is quite sufficient for a temporary purpose to insert a bung covered with white lead in the inlet-pipe, unless it is tampered with. An iron cap is used when the meter is to be disconnected for a long period of time, as it is a more permanent means of securing the end of the pipe. By a lengthened period I mean a few months or a year. The bung is covered with white lead to prevent any escape through its porosity. No pressure of gas in the inlet-pipe would drive the bung out if it were properly inserted.

Paul Latta, examined by Mr. HAWKINS.

[Witness, who is a Pole, speaks English very imperfectly; and the greater part of his evidence, especially the cross-examination, was given in German, and interpreted by one of the jury.]

I am a master hatter, residing in Crown Street, Soho. At the beginning of this year I lodged at Saville House, and my wife was cook in the establishment. At that time Bloom kept the refreshment-rooms. I do not know whether in the months of January and February Bloom was in money difficulties. I remember the day of the fire. I was in the house that afternoon. I saw a pair of steps in the passage. The gas-meter was kept in a box in a corner at the end next the glass door on the right-hand side, very high up. I saw Bloom that afternoon go up to where the meter had been. I saw him work round with his hand in this small pipe. I afterwards saw him come down the steps. He then had in his hand something that was white on one side. I cannot say what it was that he took out of the pipe. It was a round thing with white upon it. I was in the kitchen when the fire took place. Larven, and Bloom, and Schultz, had gone out then.

Cross-examined by Mr. KARSLAKE: When I lodged at Saville House, I had a room at the top, and did my work in it. I did repairing for many customers in the house. I had not lived there long—I believe about three weeks. Before that I lived in Crown Street, and did tailoring—working for shops. I cannot tell the names of the people who employed me. It was after the meter was removed that I saw Bloom on the steps. I cannot tell the exact time, as I have no watch. It was some time in the afternoon, shortly before he, and Larven, and Schultz went out. It was dark very soon afterwards. I had not been out of the house that afternoon. I went out afterwards, and returned not long before the fire. I cannot remember whether I went out in the morning of that day. I have lately been living with a person named Ebinstine. I do not know exactly when I left. I was living with him last month. I told Mr. Ebinstine before I left that I was in the City all the day of the fire, and had only returned about five minutes, and put a little milk on the fire, when the explosion took place. So many questions have been asked me that I may have given an answer which is not quite correct. I know a Mr. Spack. He wrote a petition for me, which I requested Bloom to sign, to say that I had lost all my property in the fire. Bloom refused to sign it. I did not tell Spack that I had something against Bloom in consequence. When I saw Bloom on the steps he had something white in his hand, and I believe something in his sleeve, but I cannot swear to it; something that he had in his hand or his sleeve he was working with. I was at Mr. Dawes's office in Angel Court not long after the fire, and made a statement, which was written down. I did not then say anything about having seen Bloom with something in his hands when he was on the steps. I was not asked. I was asked what evidence I could give. What I said was true. I cannot tell exactly when I first told the story about what I saw Bloom do, to the gas company. I have received 30*s.* a week from the gas company since this case was first down for trial, and during the period of my illness I received £2 a week.

Re-examined by Mr. HAWKINS: I cannot say how long it was before last July that I first told the gas company what I saw Bloom doing.

Mr. *Thomas Carter*, examined by Mr. HAWKINS.

I am an inspector in the service of the defendants. I was first in communication with the last witness in the early part of last April. He then made a statement to me in reference to the fire. He told me what he had seen, and he made a fuller statement about it on the 25th or 26th of that month, which fully coincided with the former one. He has not varied that statement since. The cause was appointed for trial in July last, and for the convenience of all parties it was then adjourned. The 30*s.* and £2 a week was not given to the last witness for the purpose of making a statement.

Mr. MANISTY objected to the witness being asked the motive for giving the money.

Lord Chief Baron POLLOCK said he was not asked with what motive, but to negative a particular motive imputed.

Mr. MANISTY apprehended that the witness could not be asked to negative a particular motive.

Lord Chief Baron POLLOCK said he thought he could. If it were suggested that a person had been bribed, the person who was supposed to have bribed him might be called to say that the money was not paid for that purpose, but to retain that person's services, and recompense him till the trial came on. He thought the question was perfectly fair, and could not be objected to.

Mr. HAWKINS (to witness): Tell me the circumstances under which the 30*s.* a week was given to Latta.

Witness: Partly for the loss of his time and partly because he told me that his wife was very anxious to go to New York, that she might receive a sum of £300 which her brother held, and which he alone could give to her. We paid him the money, therefore, to prevent his going to New York.

Cross-examined by Mr. KARSLAKE: The payment began shortly before last July, before this case was in the paper for trial. I had heard at that time that he had been subpœnaed on the other side.

MONDAY, DEC. 11.

Lord Chief Baron POLLOCK, at the sitting of the court this morning, intimated to the counsel for the plaintiff that, in his opinion, the declaration did not properly disclose the cause of the accident as proved in evidence.

Mr. MANISTY said it stated that the defendants were guilty of negligence in the removal of the meter.

Lord Chief Baron POLLOCK said that was not the question. There was something more than that which led to the accident. There was the turning on of the tap afterwards, which was the act of Bloom's people.

Mr. MANISTY admitted that that would not be a cause of action against the defendants.

Lord Chief Baron POLLOCK: That is what is proved to have been done, and that was not done by the defendants.

Mr. MANISTY thought that the turning on of the tap, as contributing to the accident, must be taken in conjunction with another fact proved—viz., that the pipe was left by the defendants in such a state that if used it would produce the result.

Lord Chief Baron POLLOCK said the plaintiff seemed to have made a mistake in stating his case. If the real cause of complaint had been stated in the declaration, the defendants would, he believed, have demurred to it. His attention had been called to this point before that day, and before coming into court he had read over the declaration with one of his learned brethren. He thought the plaintiff had stated everything for a cause of action, but had not stated what had been proved.

Mr. MANISTY said the declaration, after alleging that the plaintiff was the the occupier of part of the premises called Saville House, alleged that the defendants were possessed of and had the management of the gas-pipes and meters in the house. That was proved.

Lord Chief Baron POLLOCK: I think not.

Mr. MANISTY: They had the management of the meters.

Lord Chief Baron POLLOCK: I doubt that; but that is of no importance.

Mr. MANISTY said the declaration alleged that the defendants conducted themselves so negligently and improperly in and about the supply of such gas, and in the management of the meters and pipes, and took such bad care in the premises, and omitted to use proper care to guard against accidents arising therefrom, and to prevent the gas from escaping and exploding, that by reason of such negligence large quantities of gas escaped.

Lord Chief Baron POLLOCK: That is not proved.

Mr. MANISTY: Of course; if not, there is an end of the case.

Lord Chief Baron POLLOCK: I am very much inclined to think there is an end of the case.

Mr. MANISTY said that would be a very speedy end, and he should like to see that there were good grounds for it. Assuming that the defendants had the right to remove the meter, he thought he might then assume that they were bound to leave the pipe in a state of safety.

Lord Chief Baron POLLOCK: So they did, if nobody had interfered with it.

Mr. MANISTY: That is the whole question. Of course, if your lordship has made up your mind upon that point it is no use to discuss it.

Lord Chief Baron POLLOCK: I will hear the case to the end, but my opinion is, the declaration is wholly wrong. The difficulty I have is this—it is a maxim of the English law to look to the immediate cause of the injury. The immediate cause of this fire was one of Mr. Bloom's servants going into the corner and turning the tap, and then another one walking into that corner with a lighted candle. After looking at the declaration with my learned brother, I think you have misstated the cause of the accident. If you had stated the facts as they exist, the defendants would have demurred to the declaration.

Mr. MANISTY: But we might have got judgment upon the demurrer.

Lord Chief Baron POLLOCK: Then the question would have been on the record. At present there is no doubt you have raised in the case brought before me one of the most difficult and debateable questions in point of English law—viz., the extent to which people are liable for consequential damage. My own impression is that the maxim of English law to which I have referred leads me to limit the responsibility of all persons alleged to be guilty of negligence to consequences which may be fairly and properly anticipated and foreseen, and not those which arise out of the foolishness of other people.

After some further conversation, the counsel for the plaintiff consulted together.

Mr. BOVILL, who now entered the court and was informed of the position of the case, said as the inquiry had now occupied two days it would, perhaps, be a convenient course to let it be concluded, and the opinion of the jury taken.

Lord Chief Baron POLLOCK: Upon what?

Mr. BOVILL: Whether the gas company have been guilty of negligence.

Lord Chief Baron POLLOCK: I cannot take their opinion upon that, because it was not the negligence of the company which caused the fire, it was the interference of other people. You are quite logician enough to know the difference between *causa causans* and *sine quâ non*.

Mr. BOVILL: Your lordship is supposing that that story of the taking out of the bung is true.

Lord Chief Baron POLLOCK: I am not. I think it a very unimportant matter whether the cork was pulled out or not. I do not allude to that. There is no doubt it was one of Bloom's people who turned on the gas.

Mr. BOVILL: No doubt of it.

Lord Chief Baron POLLOCK: And no doubt another of them went with a lighted candle and set it on fire. That was the *causa causans*.

Mr. BOVILL: Then it would be a point of law supposing we obtain a verdict on the general ground?

Lord Chief Baron POLLOCK: What do you mean by the general ground?

Mr. BOVILL: Why, that the gas company acted negligently in not properly stopping the pipe.

Lord Chief Baron POLLOCK: That did not cause the accident. I cannot leave that to the jury; it is nonsense.

Mr. BOVILL: With all respect, that is a point upon which we should raise a point as to your lordship's ruling.

Lord Chief Baron POLLOCK: You may take an exception to my ruling, but I cannot leave it the jury that this caused it; it did not cause it. I think your declaration is wrong.

Mr. BOVILL: Supposing a Court of Error should think it right, then all this time has been thrown away.

Lord Chief Baron POLLOCK: Not quite thrown away. You know I do not mean to leave to the jury whether the gas company were the cause of the fire, for they were not the cause of the fire. It might have been a very wrong thing; for what I know it may be a question whether the gas company ought not to have done something more than they did, but that was not the cause of the fire.

A JUROR: I believe we are unanimous in our opinion; we believe that there was no negligence.

Mr. BOVILL: But then the case has not been heard out. I assure your lordship we have evidence in reply.

Lord Chief Baron POLLOCK (to the jury): What I understand you gentlemen to say is, that you think this leaving the gas turned off as the gas company did was not negligence.

The FOREMAN: We consider that they left it in a proper and safe state.

Lord Chief Baron POLLOCK: It was left in such a state that if no one had meddled with it, it would have been perfectly safe?

A JUROR: Yes, perfectly.

Mr. BOVILL: The case is not fully before the jury. We have evidence in reply to contradict what has been stated.

Lord Chief Baron POLLOCK: What evidence can you have in reply?

Mr. BOVILL: If a man comes here and tells falsehoods——

Lord Chief Baron POLLOCK: Do you mean about taking out the cork?

Mr. BOVILL: Yes.

Lord Chief Baron POLLOCK: That has nothing to do with the case in the opinion of the jury or in my own. I must say I, for one, think we ought to hold rather a tight hand upon the endeavour to make one person responsible for the negligence of another. The real plaintiffs in this case are the insurance company. They cannot complain of the tenant, supposing there had been negligence on his part, because they actually insure him against the consequences of his own negligence. If a man negligently sets fire to his own house the insurance company are liable; but because they have some one else, not the owner, who they think is guilty of negligence, they are trying to make him pay the damages which they ought themselves to pay (This observation was received with applause in the crowded court.) If the jury are of opinion that the gas was left so that it would not have escaped but for some one setting it loose, the plaintiff is not entitled to recover upon these pleadings.

Mr. BOVILL: I must ask your lordship to allow us to amend.

Lord Chief Baron POLLOCK: It is too late to amend. If you had stated the real cause of action in your declaration, I believe you would have been out of court. I am clearly of opinion that if a man—I was going to put the case of gunpowder, but the storeage of that above a certain quantity is illegal, and that might be a defence--but suppose I had in a room of mine a quantity of gunpowder, and was in the habit of locking it up every day, but one day I did not do so, and some one goes in and sets fire to it, am I responsible merely because on one occasion I accidentally left the door open?

Mr. BOVILL: That depends upon whether you knew that persons in the course of the day ordinarily went there.

After some further conversation,

Lord Chief Baron POLLOCK said: I cannot help you in any way. I shall certainly not allow any amendment; I consider it is not fair. This is an attempt to obtain a verdict against persons not at all liable, and so pleaded as not to disclose the real facts.

A JUROR: The actual effect of the evidence of Cazally and Downs was of course proving their own act had been in such a way as to leave everything in a state of safety. The only question is whether the plaintiffs are in a position by evidence to dispute that.

Mr. BOVILL: Do I understand your lordship's opinion is that the mere turning of the tap will be sufficient on the part of the gas company?

Lord Chief Baron POLLOCK: The cause of the mischief was one of Bloom's men going and turning on the gas, and another going and setting fire to it.

Mr. BOVILL: Our case is, supposing the company do nothing but take away the meter and leave the key on the tap, whether they performed their duty?

Lord Chief Baron POLLOCK: Then you should have stated so in your declaration. You want to make a man who is merely a *sine quâ non* liable as a *causa causam*.

Mr. BOVILL: Will your lordship allow this question to go to the jury? What we want to determine is, did the gas company leave it merely with the gas turned off without a bung in the pipe?

Lord Chief Baron POLLOCK: What, then?

Mr. BOVILL: Then we say they are responsible.

Lord Chief Baron POLLOCK: They may be responsible for aught I know, but by these pleadings you charge them with being the cause of the fire, when they are not the cause; they were only accessaries. They did something which made the conduct of some other person more dangerous than it otherwise would have been.

Mr. BOVILL: With reference to the other case, it certainly would be of some importance to have this question left to the jury, whether the bung was put in or not.

Lord Chief Baron POLLOCK: I do not think that is at all important. I do not think I ought to stop the general business of the sittings to try whether the bung was put in or not. My opinion is that it would make no difference.

Counsel for the plaintiff again consulted.

Mr. BOVILL: We think that perhaps it may save a great deal of time and trouble hereafter if we can have the opinion of the jury, as to whether that pipe was or was not stopped.

Lord Chief Baron POLLOCK: I do not think it is of the least importance, but I will ask the jury. Mind, gentlemen, exclude altogether the story of that man about seeing Bloom pull something out; I do not go upon that at all.

Mr. BOVILL: Well, if the jury will strike that out, for that is a point upon which we have evidence to contradict. I do not know whether the jury have formed an opinion independently of that. I can show that the man was not on the premises.

Lord Chief Baron POLLOCK: If found to be true it would make a great difference in favour of the defendants, but I confine the jury to this point. Did the gas company, when they left it, leave it with the cock turned off and the key put in the corner, and a bung put in the hole?

A JUROR: Yes; according to the evidence of two interested witnesses; they declare it to be the fact, but we think it ought to be confirmed by some other evidence; that is my opinion. These two parties Cazally and Downs are two interested witnesses; the question is whether any one else saw it done.

Another JUROR: Or whether any one can disprove it.

After some further conversation,

Lord Chief Baron POLLOCK repeated his observation that the cause of the accident had been incorrectly stated, adding, you state, that the company by their negligence caused the accident; but if there was negligence on their part it merely contributed to it, and there is a wide distinction between the two. It has never yet been decided that the negligence of a man's servant which contributes to an accident makes him liable for the consequences of that accident.

Mr. BOVILL said after the expression of his lordship's opinion he had no alternative, and must be nonsuited, but he wished it to be clearly understood that he was not willingly nonsuited.

The plaintiff was accordingly nonsuited, and his lordship certified for the expense of a special jury.

Another case arising out of the same explosion stood next on the list. [Smith *v.* the Gaslight and Coke Company.]

Mr. MANISTY applied that it might be made a *remanet*.

Mr. HAWKINS objected, and said it would be better to withdraw the record.

Mr. BOVILL asked leave of the court to amend the declaration.

Lord Chief Baron POLLOCK refused, saying it was an action in reality brought by the insurance company, who no doubt paid the costs. They were particularly bound to be open, candid, and explicit in their proceedings, and to state the case fairly.

After some conversation on the point, the record was withdrawn, and the proceedings closed.

COURT OF COMMON PLEAS, DUBLIN.

SATURDAY, DEC. 9, 1865.

(*Before Chief Justice* MONAHAN *and a Special Jury.*)

HEDLEY *v.* THE LORD MAYOR, ALDERMEN, AND BURGESSES OF DUBLIN.

Mr. BALL, Q.C., Mr. MORRIS, Q.C., and Mr. DAMES, appeared for the plaintiff; Serjeant ARMSTRONG, Mr. PALLES, Q.C., and Mr. DEVITT, for the defendants.

This was an action brought by Mr. T. A. Hedley, a gas engineer, carrying on business in the City of London, against the corporation of Dublin, for the sum of £258. 17s., for work and labour done, and for the time and attendance of the plaintiff, performed and bestowed for the defendants at their request. The declaration also contained three other counts, the first for money payable by the defendants to the plaintiff for money paid by the plaintiff for the defendants at their request; the second for money received by the defendants for the use of the plaintiff; and the third for money due upon an account stated. The defendants paid into court a sum of £130, and pleaded that no money was due from them to the plaintiff on account stated, other than the said sum of £130 so brought in.

Mr. BALL, in opening the case, said the plaintiff had been employed by the corporation of Dublin to make certain scientific experiments, and also to assist them by his professional and scientific knowledge, and by his labour and attendance, in opposing the progress of a bill through Parliament last session, which bill was introduced by the United General Gas Company. The plaintiff claimed £258. 17s., and the corporation had paid £130 into court, which left an unsatisfied balance of £128 due to Mr. Hedley. It appeared that in the month of February, 1864, Mr. Park Neville, the city engineer, wrote a letter to the plaintiff, offering to employ him. That letter was as follows:—

City Hall, Dublin, Feb. 28, 1865.

Dear Sir,—I am directed by the committee of the Municipal Council of Dublin having charge of the lighting of the public lamps of the city to ask you whether you can visit Dublin with a view of trying some experiments on the illuminating power of the gas supplied by the United General Gas Company, with the object of assisting the corporation in opposing a bill promoted by the company in Parliament this session, and appearing as a witness in support of their case before the committee of Parliament. As time presses, please let me hear from you by return of post, and if you can give us the benefit of your assistance, mention the earliest day you can be in Dublin. (Signed) PARK NEVILLE.

To this letter Mr. Hedley replied:—

28, *Poultry, London, E.C., March* 3, 1865.

Dear Sir,—On my return here from Exeter, I found your favour of the 28th ult., and in reply thereto I shall be glad to visit Dublin for the purpose of trying experiments on the illuminating power of the gas supplied by the United General Gas Company, and I shall be prepared to lend my best assistance in opposing that company's bill when before Parliament. I can leave London on Wednesday next, or even on Tuesday evening if wished, but in this latter case you will please let me know. Address to the Railway Hotel, Stoke-upon-Trent, where I shall be on Monday, so that I may return in time.

(Signed) TOM A. HEDLEY.

On the 9th of March following, Mr. Hedley left London and travelled to Dublin, where he arrived on the 10th, having spent 13½ hours on the journey. He spent the whole of that day on the business of the corporation. He called on Mr. Neville and had a conversation with him about the terms for his services. He told Mr. Neville that those terms would be ten guineas a day if his side were successful in carrying the case through the House, and if they were unsuccessful his terms would be five guineas a day. He was accordingly retained on these terms by the corporation. He afterwards saw Sir J. Gray on the business, attended a meeting in the City Hall, and made certain experiments which it was thought necessary should be carried on. He (Mr. Ball) thought the jury would consider that this was not a very bad day's work. On the 11th of March he was engaged from morning till night upon this business, and had interviews with Mr. Neville and others, testing gas, and throwing his whole energies into the preparations for the opposition to the bill of the United General Company. The next day was Sunday, and having concluded his experiments upon the illuminating power of the gas, he returned to London on that day. He thenceforward devoted his time, his ability, and his energies to the getting up of the case for the corporation. While he was at work everybody was satisfied with the way in which he proceeded, but the moment the pay-day came the corporation declined to give a farthing more than £130. This was a short *resumé* of the facts, and he (Mr. Ball) would now read the bill of particulars furnished by his client to the corporation of Dublin on the 8th of June last. It was in these terms:—

The Corporation of Dublin to Tom A. Hedley, C.E.

March 3 to May 27—For services rendered and time in attending at Dublin; consultations with counsel and engineers; preparing evidence and accounts; attending before committee of the House of Lords to oppose the bill of the United General Gas Company on behalf of the corporation of Dublin; correspondence, &c.—time equal to 23 days at £10. 10s.	£241	10	0
Railway, hotel, cab hire, and other expenses	17	7	0
Total	£258	17	0

London, 28, *Poultry, E.C., June* 8, 1865.

It was impossible to conceive what defence the corporation could make to the very moderate charge for hotel expenses, cab hire, &c.; and as to the other part of the demand, that was a matter of contract between the parties. He (Mr. Ball) had forgotten to state that previous to the plaintiff going over to Dublin he had to do what lawyers called "reading up the case," so as to be master of the subject upon which his services were retained. The plaintiff would be called as a witness, and he would tell the jury that he was occupied during a great number of days at work in London, engaged in consultations, on committees, and in preparing the necessary evidence.

Chief Justice MONAHAN inquired whether the corporation were successful or not in their opposition.

Mr. BALL said they were; and, being successful, they were bound to pay the plaintiff for his services, according to the arrangement they had made with him.

Mr. *T. A. Hedley*, examined by Mr. MORRIS.

I am a civil engineer. The branch of the profession to which I have principally devoted myself is the study of gas and its properties, and I am in the habit of being examined on the subject. I am always retained to bring about a supply of cheap and good gas. I have never given evidence even once on the other side. I did not know Mr. Neville until I received the letter from him which has been read, dated February 28th, 1865. Before coming to Dublin, I read up most attentively the case upon which I was about to be engaged. Having received that letter, I left London on the evening of the 9th of March, and arrived in Dublin the next morning. I saw Mr. Neville, and told him that my terms were ten guineas a day if we were successful, and five guineas a day if unsuccessful. The corporation

were successful in their opposition to the bill of the gas company. I afterwards called on Mr. Cotton and Sir John Gray, and attended a committee meeting at the City Hall. I also spent a considerable time in testing the gas, &c. I was engaged for twelve hours in very hard work indeed. Mr. Neville agreed to the terms which I have named.

Mr. MORRIS: Do you swear that you were altogether 24 days engaged for the corporation?

Witness: I count every six hours a day, and I was 24 times 6 hours at hard work.

Mr. MORRIS: How long did the committee sit?

Witness: Seven days.

Mr. MORRIS: Are these your usual charges? Are they the charges you are in the habit of making?

Witness: I have been paid £300 for less work. I think I have been very badly used by the corporation.

Mr. MORRIS: I believe you are not very fond of litigation?

Witness: No, indeed I am not. I offered to leave this matter to the decision of any one they could not object to—to their own counsel, Mr. Charles Barry.

Mr. MORRIS: Will you read to the jury your bill of particulars?

Witness: I will.

		Days.
March	3.—Retained by Mr. Neville; engaged in preparing case	1
,,	9.—Left London for Dublin, 7.0 to 8.30 (13½ hours)	
,,	10.—At Dublin, with Mr. Neville, Mr. Cotton, Sir John Gray; attended at committee at City Hall, testing gas, &c. (12 hours)	7
,,	11.—At Dublin, with Mr. Neville, Mr. Cotton, Mr. Barry, Mr. Wigham, testing gas (12 hours)	
,,	12.—Left Dublin, 6.0 to 9.50 (15 hours and 50 minutes)	
,,	14.—Preparing evidence	1
,,	15.—Ditto	1
April	4.—Consultation with Smith, Stevenson, and assisting Stevenson with evidence	1
,,	5.—Consultation, 10.30, at 13, Little Queen Street, office of Muggeridge, parliamentary agent; Stevenson, Smith, &c.; assisting Stevenson	1
May	8.— Correspondence and accounts.	1
,,	10.—	
,,	15.—Consultation with Neville; preparing for case	1
,,	16.—Consultation; committee	1
,,	17.—Consultation; committee	1
,,	18.—Consultation at Muggeridge's, 10 o'clock; also attending at Mr. Anderson's, with Wigham, and Shannon, after 4	1
,,	19.—At Mr. Anderson's, with Wigham and Fitzgerald, 10 o'clock; at home till 5	1
,,	20.—Examining and checking accounts prepared by Anderson, showing costs of works, &c.	1
,,	22.—Consultation; committee, 11 till 5	1
,,	23.—Consultation at 10; at home all day, 11 till 5; Anderson examined	1
,,	24.— Queen's Birthday. Reading papers connected with case; con-	
,,	25.— sultation with Stevenson	1
,,	26.—Consultation and committee.	1
,,	27.—Preamble declared not proved	1
		24

Mr. MORRIS: Who is Mr. Stevenson, whose name I see here?

Witness: I suggested to the corporation that it would be advisable to employ Mr. Stevenson, as all the great men were retained on the other side, and the corporation thought I was correct in so doing, and he was retained; he is an engineer of great experience.

Cross-examined by Mr. PALLES: Mr. Morris has just asked whether these are your usual charges?

Witness: Yes, and I told him they were.

Mr. PALLES: Do you make the same charges to large and small corporations?

Witness: I have already sworn that I have two scales of charges; one for successful and the other for unsuccessful cases. I have no other scale; I charge large and small the same.

Mr. PALLES: Suppose all the work you have done for the Dublin Corporation you had done for a small corporation, would you have charged them the same as you have charged us?

Witness: I certainly should have done so. Ten guineas a day is my charge if the case is successful, and five guineas a day if unsuccessful. By a day I mean when I go to a consultation, or the day the committee meets. I have never charged for fractional parts of days.

Cross-examination continued: I have never charged less except once, which was a case in which a member of my own profession was engaged—an engineer's case. I remember the case of *Hedley v. Dethick.* I charged there two guineas and a half for a consultation and seven guineas and a half for a day's attendance in court and consultation. My account was £76, and Mr. Dethick paid into court £52. 10s., which the jury found was sufficient, and Mr. Dethick was successful. I have been engaged by the Leamington Local Board and have charged them ten guineas a day. [Witness read over the account presented to the corporation as quoted by the learned counsel in opening the case.]

Mr. PALLES: Now, beginning with the 3rd of March, what is the ten guineas there charged for?

Witness: I was retained on that day by Mr. Neville, and I was engaged in preparing a case.

Mr. PALLES: What preparation had you to make on that day?

Witness: I had to read up on the point; I had to look into several papers of my father's bearing on the subject in hand.

Mr. PALLES: What is the next day you charge for?

Witness: The 9th of March. That was the day I left London for Dublin?

Mr. PALLES: You mean to say that was the night you left London for Dublin. You know you were the whole day in London. What time did you leave London?

Witness: By the evening train, at seven o'clock.

Mr. PALLES: Tell us what you did the next day, the 10th of March?

Witness: I went that day, after leaving my hotel, to Mr. Neville's. I saw Sir John Gray. I attended the meeting at the City Hall, and a considerable portion of the day I spent in testing gas. I was twelve hours at work—hard work. The next day was Saturday, the 11th of March, when I was with Mr. Neville, Mr. Cotton, Mr. Barry, and Mr. Wigham testing gas—hard worked indeed for 12 hours. I left Dublin at six o'clock, and arrived in London at 9.50, that was 15 hours and 50 minutes. My passage on the 9th occupied 13½ hours.

Mr. PALLES: How many days do you count it from Thursday night at seven o'clock to the following Sunday at ten o'clock?

Witness: I call that seven days, and so I told Mr. Smyth in one of my letters.

Mr. PALLES: I will ask you to read this letter [handed to witness].

Witness read as follows:—

28, *Poultry, London, E.C., June* 23, 1865.
Dublin Gas.

Dear Sir,—In reply to your inquiry respecting my account, the 23 days are made out by time on the 3rd, 9th, 10th, 11th, 12th, and 14th of March; the 5th of April; and the 8th, 10th, 15th, 16th, 17th, 18th, 19th, 20th, 22nd, 23rd, 24th, 25th, 26th, and 27th of May. Many of the days were very long ones, at the rate of six hours a day give a total of 23 days. The £17. 7s. is made up of railway and steamboat, cabs, &c., to and from Dublin; in hotel bill, cars, &c., during stay there; and cab fares, postages in London.—I am, &c.,

(Signed) TOM A. HEDLEY.

To John Smith, Esq.

I charge for all the days mentioned in my account. The committee sat seven days. The other days I charge for was when I was engaged watching the case.

Mr. PALLES: You looked in for a minute to see if it was likely to come on, I suppose?

Witness: I was watching it.

Mr. PALLES: Is it not a positive fact that the committee only sat four days?

Witness: It is not a fact.

Mr. PALLES: I see you charge for the 24th of May. The committee did not sit that day?

Witness: No: that was the Queen's birthday.

Mr. PALLES: Nor the next day, for that was Ascension Thursday?

Witness: No: the committee did not sit the next day.

Mr. PALLES: Is it not the fact that you have charged us for being at the House some days watching our case when you were engaged the very same days at the House about other bills?

Witness: Counsel do the same thing.

Mr. PALLES: But did you not say that your entire time was occupied in the business of the corporation?

Witness: I am quite as much entitled to these professional fees as counsel are to theirs. I feel assured that Mr. Smyth and Mr. Muggeridge charged the corporation for their attendance on those very days. Mr. Barry and I used to be walking up and down the lobby waiting for the case to come on.

Cross-examination continued: Counsel did not attend all the consultations of which I speak. I have heard of the Commercial Gas Company of Dublin and Kingstown. It was not a rival company. That company lost their bill. They engaged me. I did not get a halfpenny from Mr. Anderson or any other company.

This was the plaintiff's case.

Serjeant ARMSTRONG said he appeared on behalf of the corporation of Dublin, and he must say that a more exorbitant bill than that presented by the plaintiff to his clients he had never before seen. The corporation did not deny that they had employed the plaintiff, and he was not instructed in the smallest way to throw any imputation upon the plaintiff's ability or competence. But such a trumped up bill as this had never before been put together. Just imagine the quiet way in which the plaintiff converted four days into seven. He left London on the 9th of March, and was home again on the 12th, and this was seven days. Did the jury ever hear of anything like that? He (Serjeant Armstrong) always understood a day to mean a day. He would examine Mr. Neville, a most respectable engineer, who would tell them that there was no such usage in the profession as that of calling six hours a day, nor of putting together scraps of days into six-hour parcels, and calling each such parcel a day. The first charge made by the plaintiff was on the 3rd of March, when, as he told the learned counsel (Mr. Morris) he was engaged "reading up the case." It was a practice among lawyers to "read up a case" when they had to sit down and get all the facts into their heads, and to work up in each case some new information. But that was not the case here. The plaintiff only wrote a letter one day in reply to Mr. Neville, but he had made a charge of ten guineas. He (Serjeant Armstrong) maintained that such a charge was outrageous. The plaintiff spoke of six hours a day as a heavy day's work, but a lawyer thought sixteen hours a good day's work. The next item was the 9th of March, and the corporation were willing to allow him ten guineas for that day and the two following days that he was in Dublin; and, putting everything together, he thought they were paying him in a most liberal manner. No doubt the plaintiff was a respectable engineer, but still he was not a Hawksley—he was not at the top of his profession. He (Serjeant Armstrong) held in his hand all his wonderful production, covering twelve pages, which the plaintiff had put together, and this was the only visible result for the £130 which the corporation had paid into court to meet the plaintiff's claim, and which certainly, as far as he could see, involved no great amount of labour. He was instructed that it was on the 15th of May that the case of the United General Bill first appeared in the list. On that day the plaintiff charged ten guineas for a consultation. Why, the Attorney-General of England would only have charged five guineas. Then, again, it was absurd to charge ten guineas for dropping into the House just to see whether the case was likely to be coming on. The plaintiff told them that he and Mr. Barry used to be walking up and down the lobby. Why, a conversation with Mr. Barry, as pleasant a fellow as ever was met with, was in itself worth ten guineas. The strangest charge of all that was made by the plaintiff, was the charge of ten guineas for the Queen's birthday and Ascension Thursday, on neither of which days the House sat. Then, on the 27th of May, the bill of the gas company was thrown out, the preamble not being proved, and this wonderful engineer was not examined at all.

Mr. *Park Neville*, examined by Mr. DEVITT.

I am engineer to the corporation. I wrote the letter to the plaintiff dated the 28th of February. The plaintiff rendered us no service whatever on the 3rd of March. All he did was to write the letter in reply to mine which has been read. The committee only sat four days, and not seven, as the plaintiff has stated. They sat on May 22, 23, 26, and 27, on which latter day the bill was thrown out, as the preamble was declared "not proved." The House did not sit on the 24th, which was the Queen's birthday, nor the 25th, which was Ascension Thursday.

Mr. DEVITT: Are the charges made by the plaintiff fair charges?

Witness: They are extravagant charges.

Examination continued: I have had a good deal of experience during the last few years, and I know what are the charges made by first-class men. Mr. Hawksley charges eight guineas a day, Mr. Simpson came to this country in reference to the water-works, and gave evidence upon the question in Parliament, and his entire bill was only £126. The work the plaintiff did in Dublin was not very hard. He attended the City Hall and made some experiments. He was only two days out of London. He did his business there on the Thursday, spent Friday and Saturday, the 10th and 11th of March, in Dublin, and was back in London on Sunday the 12th. He was on three or four regular consultations in London. By a regular consultation I mean when counsel and all the parties assemble. These consultations lasted from half an hour to an hour. I am an old practitioner, and I never heard such a custom as that of reckoning six hours as a day.

For a man of the plaintiff's position I think three guineas would be a fair remuneration for attending a consultation.

Chief Justice MONAHAN said it appeared to him the whole question was one of *quantum meruit*. Had the plaintiff given his services to the extent of 24 days?

Cross-examined by Mr. MORRIS: I cannot say how many engineers were employed by the United General Gas Company. They had some of the first men in England. I had no one else but the plaintiff left me; they retained all the leaders. The plaintiff had the management of the case. For the look of the thing it was right for him to have Mr. Stevenson. I think his charge of ten guineas for a few words of conversation called a consultation, is monstrous.

Mr. *Cotton*, examined by Mr. DEVITT.

I am gas inspector to the corporation. I remember the plaintiff's visit to Dublin in March last. I met him at the City Hall on the 15th of that month and took him to Mr. Neville's. We were three-quarters of an hour testing the gas. He then complained that he was tired and said he should go to his hotel. He stopped half an hour there; and we then went to the gas company, and parted with him at three o'clock. I saw him again in the evening at the Imperial Hotel. He did nothing more that day. Next day I went to meet him at half-past eleven o'clock, and we went to the committee at the City Hall where he sat down and wrote out a portion of his evidence. It was about three o'clock when I parted with him. I dined with him, and in the evening we went to the City Hall to make experiments with the burners. I attended in London as a witness, and was present at two of the consultations; they lasted about an hour each. I was not at the consultation on the 25th of May; there were only three consultations altogether. It is impossible there could have been another without my knowing it.

Cross-examined by Mr. DAMES: At those consultations the plaintiff assisted counsel.

Mr. *Smyth*, examined by Mr. PALLES.

I am solicitor to the Dublin Corporation. I went to London on the 15th of May; the 22nd was the first day the case came on. In the interval between those dates I had consultations and conversations with the plaintiff. He attended three consultations at my instance. I am positive he never attended more than three. We met very frequently at the agent's office; with the exception of the draft of his evidence I got no document from him I never looked upon the Commercial Company as friendly to us; I was very cautious of that company. We had the highest engineering talent when our water-works bill was before Parliament—that is Mr. Hawksley—and his charges were only eight guineas a day. Sir John Benson's fees were five guineas a day.

Cross-examined by Mr. MORRIS: I am paid by fees. I was paid for the days on which I was engaged for this bill. I did not act as parliamentary agent. I watched the case every day, and was paid for it. The plaintiff had other business to do in the House. His evidence, no doubt, was needed before the committee, but we had Mr. Stevenson's also. I never heard that Mr Hawksley charged twenty guineas a day.

Mr. PALLES summed up the case for the defendants. The entire question for the jury, he said, was one of fact; and that question was, whether the £130 paid into court was a sufficient remuneration for the plaintiff or not. The charge which appeared in his account on the 3rd of March was downright preposterous. He charged ten guineas for writing a letter and posting himself up in the properties of gas—a question which it should have been the study of his life to become familiar with. Again, did any one ever see such an attempt at bilking a corporation as the charge of seven days from the 9th of March to the 12th? No doubt the plaintiff's conversations with Mr. Neville were of importance, but that importance could not be pushed to the extent the plaintiff desired to do it. Assuming that the contract was for ten guineas per day, he (Mr. Palles) would ask the jury what was the fair, honest meaning of that contract? They were not to look at what might be passing in Mr. Hedley's mind at the time when he made this contract, or as to what he intended to do, but at what they or any reasoning men would say was the plain, common sense view of his conversation with Mr. Neville when he told him that his charge would be ten guineas a day. If any of the jury, as men of business, had contracted with an engineer to do certain work for them at that rate per day, would they tolerate for a moment an additional charge beyond that sum if this engineer happened to be engaged for an hour or two beyond six hours? Why, the reply would be, "A day's work is a day's work, and I will not allow you to make a charge for two days work because on any one day you happened to be occupied for eight hours." The corporation were willing to call the 9th of March one day, the 10th of March another, the 11th another, and the 13th another, and to allow ten guineas for each day: but they were unwilling to call these four days seven, or even six. Accordingly they tendered forty guineas for these four days—or, rather, they lodged it in court—and he maintained that that was an amply sufficient remuneration. As to the alleged custom in the profession, Mr. Neville swore that in his long experience he had never heard of such a custom as counting six hours a day. He (Mr. Palles) passed over altogether the statement about the plaintiff's difference of charge to large and small corporations or to any other body. He admitted and insisted that the plaintiff was entitled to the hightest fee—viz., ten guineas per day. But did the jury remember the day's work of the plaintiff on the 3rd of March? Writing a letter, and looking up some instructions on the point in his father's papers! It would be just as reasonable for him (Mr. Palles) to charge for reading his brief, and then for looking up the law, which by courtesy he was supposed to know. Why, if this principle were acted upon, the result would be the charging of enormous fees, which would be ruinous to society. The corporation of Dublin met the plaintiff's demand by saying, "We are not going to pay you for reading up your father's reports, but for your experience and for your supposed learning." No man in his senses would be disposed to pay the plaintiff ten guineas a day for strolling into the lobby of the House of Lords to see whether the case he was engaged in was likely to be called on. He (Mr. Palles) allowed that the plaintiff ought to be remunerated, but he contended that he had been amply repaid for his labour in writing out the twelve sheets of paper he held in his hand, and which contained the evidence he was to have given. It was part of the plaintiff's duty to furnish the solicitor with the evidence he was about to give, so that counsel might be instructed in the case. It was a monstrous thing for the plaintiff to ask the corporation to pay him ten guineas a day for nothing but looking in to see what o'clock it was. Mr. Morris ingeniously endeavoured to draw a comparison between the plaintiff and Mr. Smyth, the corporation solicitor, and observed that one should be paid the same as the other for those days when it was expected the case might come on. But there was this great difference, that Mr. Hedley was in London which was his home, while Mr. Smyth's home was in Dublin. A medical man, when he was sent for to a patient at a distance, was entitled to a larger remuneration than when he attended a patient on the spot. In the name of common sense he would ask, why did the plaintiff charge ten guineas on the Queen's birthday and Ascension Thursday? No doubt, for the four days in which he was actually engaged upon the bill before the House he was entitled to be paid, but only for those four days according to the contract. What was a contract? A contract required the assent of both parties, but it must be clear and definite, and when a day was expressed it meant an ordinary day, and not a day of six hours according to the plaintiff's way of reckoning. He (Mr. Palles) called upon the jury to scout this case from the court, and to express their opinion that the corporation had dealt most liberally with the plaintiff in tendering him for such service as he had rendered the sum of £130.

Mr. MORRIS replied for the plaintiff. He said this was simply a question of figures. His client had entered into a contract, and had done work for this most frugal corporation, and so soon as their object was accomplished, and the bill they were opposing was thrown out, they came back to Dublin, and said, "We won't pay you what any honest man must say is due to you." And it was not only not to pay him, but to vilify him that they compelled him to come to this court. His client was picked out as the only man in all England to meet seven of the most illustrious engineers in the world, and if he could squeeze seven days work into four, why should he not be paid for seven days. His client had turned night into day, travelling all night from London to Dublin, and back again, and working morning, noon, and night when in Dublin, and then this economical corporation refused to pay him for his time and labour. What was Mr. Smyth paid for in London? To be sure he was an ornament, but Mr. Muggeridge was the man who conducted the opposition to the bill of the gas company when before the House. He contended that the plaintiff was fully entitled to be paid according to the particulars of his demand.

Chief Justice MONAHAN, in summing up, said the plaintiff claimed compensation from the Dublin Corporation for the time spent by him upon the business of that body. It appeared that he made an agreement with the officer of the corporation, Mr. Neville, and he informed that gentleman that his charge was ten guineas a day if the corporation were successful, and five guineas if they were unsuccessful. The only question for the jury was, what was the reasonable sum which the plaintiff should be allowed at that rate. He claimed for seven days in Dublin, and for both the nights in which he was travelling; but it was for the jury to say what, in their opinion, was the number of days he did give. The plaintiff told them that, on the 3rd of March, he spent some time in reading up the business before he left London, having received a letter asking him to go over to Dublin. He charged one day for that. He also charged for the night he was travelling and for the two days he was in Dublin, as for seven days. He thought they ought to settle this account with the plaintiff by setting off a good day's work against a bad day's work. Then the plaintiff said that when in London he attended several consultations. The number of consultations at which counsel were present was only four. As far as he (the learned judge) could see, the meaning of the word days must be taken to be ordinary days; and if the plaintiff was honestly and *bonâ fide* engaged in work for the corporation on the days over which his claim extended, and that for the purpose of enabling the corporation to conduct their case, it appeared to him that he should be paid for those days. The bill that he was engaged in opposing seemed to have been several days in the list before it came on, and if the plaintiff during those days was engaged in attending to other business, it would not be fair that he should get compensation from the Dublin Corporation for those days. The jury had heard the evidence and had been told the mode of calculation adopted by the plaintiff. It was for them to say whether in their opinion the £130 lodged in court was sufficient remuneratien for the services he had rendered.

The FOREMAN of the JURY said the jury were of opinion that the £130 was sufficient.

A verdict was thereupon entered for the defendants with costs.

BACUP COUNTY COURT.

TUESDAY, NOV. 14, 1865.

(*Before* T. S. T. GREENE, Esq.)

PENNY *v.* ROSSENDALE UNION GAS COMPANY.

Mr. EASTWOOD, of Todmorden, appeared for the plaintiff; and Mr. WATSON, of Bury, for the defendants.

This was an action brought by an auctioneer and house-agent, carrying on business in Union Street, Bacup, against the Rossendale Union Gas Company, to recover the sum of £2 for damages arising from that company illegally cutting off his gas.

Mr. EASTWOOD, in stating the case, said the plaintiff, Mr. R. H. Penny, was formerly in partnership with his brother, Mr. E. C. Penny, who on leaving the house, which the plaintiff now occupied, owed a sum of 7s. 6d. to the defendants for arrears of gas-rental. On taking possession of the house in September, 1864, the defendants appeared to have considered the plaintiff as bound to pay those arrears, and in every account subsequently delivered they charged this item against him. At the end of the first quarter the plaintiff complained to them on the subject, and denied his liability. Ultimately the defendants cut off the supply of gas to the house on account of non-payment of these arrears. He (Mr. Eastwood) denied their right to do so under the powers of their own private Act or of the Gas Clauses Act. He contended that the company were bound to supply all persons in their district who paid for the gas actually consumed by them, and that it was unreasonable to suppose they were warranted in cutting off the supply whenever they chose. Prior to the time of his client taking the house in Union Street, he had not been a householder or a ratepayer, and was not acquainted with the rules of the company. One of those rules, which was printed on the company's quarterly accounts was to this effect—"Any person removing from or to premises supplied with gas by this company without giving immediate notice to this office of such removal, is rendered liable for any gas consumed by the next or previous tenant during the then current quarter."

His HONOUR: If that is the case, and you did not give them notice, you will have to pay.

Mr. EASTWOOD contended that the company had notice at the time their servant took the state of the meter when his client entered the house.

Mr. *R. H. Penny*, the plaintiff, said that previous to taking the house in Union Street he had never been supplied with gas by the company. His brother formerly resided in the house, and the day following that on which witness took possession, his brother was served with a summons for £2 arrears of gas-rental. The collector had called on the previous evening for the amount, and witness told him that he had that day taken possession of the place. At the end of two or three weeks the company sent in a bill for 7s. 6d. in his brother's name. Witness refused to pay that amount, but it

had been brought forward in every subsequent account. In October last, Mr. Newbigging, the company's manager, told him that he had laid the matter before the directors, and they had instructed him to say that unless these arrears were paid the gas would be cut off. Witness had paid, or offered to pay, for all the gas he had himself consumed. The company ultimately cut off the gas at the main. Previous to taking the house he was in partnership with his brother, but the business was conducted at his (the plaintiff's) lodgings. In cross-examination, witness said the names of both partners were on the signboard over the door of the house in Union Street, but no business was done there; it was his brother's private residence. Evidence was also given by another witness that the plaintiff resided in his house during the partnership, and that the business was conducted there.

Mr. WATSON, for the defendants, contended that no case had been made out against them; that they were not bound to supply the plaintiff with gas, and had a right to discontinue that supply, the arrears not being paid, especially as they had reason to believe that this was the place of business of the co-partnership.

His HONOUR inquired, if such was the case, why the company continued to supply the plaintiff with gas.

Mr. WATSON said the 7s. 6d. was not due at the time the summons for the £2 was taken out against Mr. F. C. Penny, but had become due before the dissolution of the partnership, and that Mr. R. H. Penny had engaged to pay the debts of the firm. He should be able to prove that the two brothers conducted their business at the place in question, and that the plaintiff was a consumer of gas along with his brother.

Mr. *Amos Hoyle*, a collector for the gas company, deposed to having transacted business both with the plaintiff and his brother at the house referred to; but, in cross-examination, said that Mr. E. C. Penny occupied the place and received gas from the company before the partnership was contracted.

Mr. *Newbigging* was called, and said that he always regarded the house in question as the place where the two brothers conducted their business.

His HONOUR said, as this was a peculiar case, he should reserve his decision until the next court.

TUESDAY, DEC. 12.

His HONOUR, in giving judgment, said this was a case in which Richard Henry Penny sought to recover damages from the defendants, for cutting off his supply of gas. The case was defended on three different grounds; first, that the plaintiff was a joint contributor, and that this was a partnership debt; secondly, that the plaintiff, on entering the premises, did not give notice to the defendants; and thirdly, that the company were not bound to furnish a supply of gas. On all these points his opinion was in favour of the plaintiff. He thought the plaintiff had never been treated as a partner, that the company had full notice given to them as to the commencement of the plaintiff's tenancy, that they also had ample opportunity of getting the debt from the plaintiff's brother, and that they were bound to furnish a supply of gas. They had no right to deprive a tenant of such supply, because of a disputed debt which he had expressed his willingness to pay should a court of law decide that he was liable. The only question he had now to decide was as to the damages, and he should give a verdict to the plaintiff for 10s.

Mr. EASTWOOD applied for costs, which were allowed.

Miscellaneous News.

REDUCTION IN THE PRICE GAS AT NORWICH.—The British Gas Company have issued a circular announcing their intention to reduce the price of gas in Norwich, to private consumers from the 1st of January next, to 3s. 6d. per 1000 feet, with the following discounts:—If the half year's consumption be £10 and under £25, 5 per cent.; if £25 and under £50, 7½ per cent.; and if upwards of £50, 10 per cent.

THE GAS SUPPLY TO THE CITY OF LONDON.—At the Meeting of the Commissioners of Sewers, on Tuesday, Dec. 12th, Dr. Letheby presented the following report on the quality of the gas supplied during the past quarter:—

To the Honourable Commissioners of Sewers of the City of London.

Gentlemen,—I have to report to you that the illuminating power of the gas supplied to the City during the quarter which ended in November last has been examined on 654 occasions, and the results are as follows:—

	Max.	Min.	Average.
Great Central Gas	14·58	12·02	13·62
Chartered Gas	14·80	12·08	13·51
City Company's Gas	14·82	12·35	13·60

Each of the above examinations is the result of ten observations, and they show the illuminating power has been at all times above the standard of the Act of Parliament, and with respect to the chemical quality of the gas I have to report that 55 analyses have been made of each company's gas for the purpose of estimating the amount of sulphur in the gas, and the following are the results thereof:—

Grains of Sulphur per 100 Cubic Feet.

	Max.	Min.	Average.
Great Central Gas	30·3	19·2	22·65
Chartered Gas	28·4	15·7	21·47
City Gas	25·1	16·4	19·48

And, further, I have to state that of the 55 testings of each company's gas, the Great Central has failed to fulfil the requirements of the Act of Parliament on 53 occasions, the Chartered on 34 occasions, and the City Company on 19. The chief failings of the City Company in this particular have been during the month of November, for in the two preceding months the average amount of sulphur was only 18·67 grain per 100 cubic feet, and there were but three occasion during that period when the amount of sulphur exceeded the quantity sanctioned by Parliament.

Lastly, I have to report that the gas supplied by the Chartered Company has at all times been overcharged with ammonia.—I remain, &c., HENRY LETHEBY.

Guildhall, Dec. 12, 1865.

HANLEY GAS CONSUMERS COMPANY.—All parties interested in this company will be glad to learn that some progress has at length been made in the settlement of costs by the British Company. The sum of £2024. 1s. 2d. has been paid on account; but several of the largest items have not been agreed upon, and will probably be subject to reference, pursuant to the terms of arrangement before the parliamentary committee. All the local costs, including the costs of solicitors and witnesses, have been paid by the British Company, and the new company has now a respectable balance at its bankers. As to the amount of deposits likely to be returned to the shareholders, it is impossible at present to express a positive opinion. There is a strong and honourable feeling amongst the directors, and other large shareholders, in favour of returning the deposits in full to the small holders, and to non-residents in the district who do not participate in the great advantages secured by the company; but expenses have been necessarily incurred since the parliamentary contest, which the shareholders will of course defray. The shareholders as a body, we understand, will shortly give a public dinner to the directors and to the officials who have served the company and the public so well. A very short time is likely now to elapse before the company is dissolved.—*Staffordshire Sentinel.*

NAPHTHA LAMPS.—Mr. W. J. Payne, deputy-coroner for the City, held an inquest at St. Bartholomew's Hospital on the 11th inst., relative to the death of John Millard, aged 32 years. Mr. Henry Cameron said that he was foreman to the sub-contractor of the Finsbury Extension of the Metropolitan Railway. Last Friday week the deceased and a number of others were employed under him at the new station in Charles Street, Farringdon Road. At half-past six in the evening the deceased, who was the storekeeper, went into the store-room with two men. They carried a lamp, the room being a wooden house under one of the railway arches. In a few minutes the witness heard a loud explosion, as if a quantity of gunpowder had blown up. There were screams from the men, and one of them, Charles Beach, ran out in flames. The witness rushed into the store-room to the assistance of the other men, and found the whole place on fire and the deceased in flames. He was pulled out on to the platform, and with great difficulty the fire was put out. The witness asked the deceased what had happened, and he answered that the naphtha had exploded. He and the other man, Charles Beach, were sent to the hospital fearfully burnt. Charles Beach, who appeared covered with bandages, said that he was an iron fitter employed in the construction of the roof of the new station. When the deceased and he went into the stores, the deceased complained of the bad light given by the oil lamp which he had to work by. There was no oil in store, and the deceased said that he would fill the lamp with naphtha. He went to one of the three-gallon jars containing naphtha, and filled his oil lamp with it, and then lighted it and placed it on the ground. While he was yet stooping down over it the naphtha in the lamp exploded and set him on fire. The place was instantly in a blaze. The witness was set on fire and had to run out of the place. The proper naptha lamps were made in a peculiar manner, so as to prevent the spirit of the naptha evaporating and exploding. The lamp that deceased filled with naphtha, for want of oil, was a common oil lamp, and had no contrivance of the kind

Share List of Metropolitan Gas Companies.

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum	Price per Share.
	£		£ s d	£ s d	£ s d
3000	10	Anglo-Romano . .	10 0 0	9 0 0	10 to 12
3000	20	Bahia (Limited) . .	20 0 0	3 0 0	
1000	20	Do., preference .	20 0 0	10 0 0	28 0 0
750	20	Do., do., redeem.	10 0 0	10 0 0	12 to 13
20000	5	Bombay (Limited).	5 0 0	£5 intr.	5⅜ to 5⅝
10000	5	Do., second issue	5 0 0	£5 intr.	5⅜ to 5⅝
10000	5	Do., third issue .	3 0 0	£5 intr.	3⅜ to 3⅝
10000	20	British, Limited . (Norwich, Hull-Sculcoates, Hanley, Tunstall & Shelton (Potteries), Trowbridge, & Holywell.)	20 0 0	10 0 0	29¼ to 30¼
12000	50	*Chartered*	50 0 0	10 0 0	69½ to 70
6000	50	Do.	30 0 0	10 0 0	39 to 40
10000	20	*C. of London*, Ash.	20 0 0	10 0 0	28½ to 29
10000	10	Do., B shares	10 0 0	4 0 0	7 5 0
8000	10	Do., new shares.	10 0 0	10 0 0	15 to 15½
35000	25	City of Moscow (L)	7 10 0	£7 intr.	5 to 6
17490	25	Colonial & General *Commercial* . . .	25 0 0	10 0 0	37 to 37½
5000	20	Continental G. & W.	6 0 0	6 0 0	
2500	20	Continental Union.	20 0 0	8 0 0	18 to 19
17500	20	Do.	10 0 0	8 0 0	9 to 9½
5827	5	County & Gen. (L)	5 0 0		
2000	5	Do., preference . (Faber, Pembroke, Ely, Lea Bridge, Northfleet, Walton, & Ware.)	5 0 0	6 0 0	
2000	10	*Crystal Pal. Dist.*	10 0 0	10 0 0	15½ to 16
5000	10	Do., preference .	10 0 0	6 0 0	12½ to 13

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum.	Price per Share.
	£		£ s d	£ s d	£ s d
4000	50	*Equitable*	50 0 0	10 0 0	75½ to 76
4000	25	Do., new shares.	21 0 0	10 0 0	35 to 36
23406	10	European (Lim.) .	10 0 0	10 0 0	13¼ to 13½
12000	10	Do., new shares. (Boulogne, Amiens, Rouen, Caen, Havre, & Nantes.)	5 0 0	10 0 0	6¼ to 6⅜
20000	10	*Great Central Gas Consumers* . .	10 0 0	10 0 0	14¼ to 15½
5000	10	Hong Kong (Lim.)	10 0 0		11 to 12½
26000	50	*Imperial*, old sh.	50 0 0	10 0 0	79½ to 80½
1300	100	Do., bonds . . .	£100	10 0 0	197 to 198
7000	25	Imperial Austrian.	10 0 0		
28000	50	*Impl. Continental* (Amsterdam, Berlin, Ghent, Hanover, Lille, Rotterdam, Aix-la-Chapelle, Antwp., Bordeaux, Brussels, Cologne, Frankfort-on-M., Haarlem, Stolberg, Toulouse, & Vienna	43 15 0	16 0 0	95 to 95½
3000	40	*Independent* . . .	40 0 0	10 0 0	65 to 70
3000	10	Do.	10 0 0	5 0 0	8 to 9
3000	20	Do.	10 0 0	7 10 0	11 to 13
6886	50	*London*	50 0 0	10 0 0	72 to 73
5519	25	Do., 1st pref. .	25 0 0	6 0 0	29 to 29½
568	50	Do., 2nd pref. .	50 0 0	6 0 0	
219	50	Do., 3rd pref. .	50 0 0	6 0 0	
		Do., 1st pref. ah		6 0 0	
		Do., 2nd pref. ah		5 0 0	

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum.	Price per Share.
	£		£ s d	£ s d	£ s d
12000	5	Malta & Medit. (L.)	5 0 0	2 10 0	
30000	5	Oriental, Calcutta	5 0 0	8 0 0	5⅜ to 6
30000	5	Do., new shares.	1 0 0	8 0 0	1 to 1½
10000	5	Ottoman (Limited)	5 0 0		3½ to 4
10000	10	Para (Limited) . .	10 0 0	£5 intr.	10½ to 11
27000	20	*Phœnix*	20 0 0	10 0 0	31 to 33
3600	100	Do., new	10 0 0	7 10 0	14 to 16
144000	Sk.	Do. (capit. profits)		5 0 0	
5000	20	*Ratcliff*	20 0 0	10 0 0	31 to 33
20		Rio de Janeiro (L).	20 0 0		21 to 21½
4138	5	Singapore (Lim.) .	5 0 0		
2000	5	Do., preference . Shanghai	5 0 0	7 10 0	
4000	50	*Sth. Metropolitan*	50 0 0	10 0 0	80 to 82
15000	10	*Surrey Consumers*	10 0 0	10 0 0	14½ to 15
10000	10	Do., new . . .	4 0 0	10 0 0	7 to 7½
9000	50	United General . (Dublin & Limerick)	50 0 0	4 12 0	30 to 31
10000	10	*Victoria Docks* . .			
1500	10	*Wandsworth & Putney*	10 0 0	7 10 0	
1500	10	Do., new shares .		7 10 0	
20000	10	Western (Limited) A shares.	10 0 0	10 0 0	15½ to 16½
10000	10	Do., B shares.	5 0 0	10 0 0	8½ to 9
10000	10	Do., C shares.	3 0 0	10 0 0	5½ to 6
20000	10	Do., D shares.	1 0 0		1½ to 2
8000	5	*West Ham*	5 0 0	7 10 0	6 10 0
6000	5	Do., new shares.	3 0 0	7 10 0	3 10 0
551	10	West London Junction (Lim.) . . .	10 0 0	6 0 0	
520	10	Do., preference .	10 0 0	6 0 0	

Naphtha was generally used at railway works for the sake of the brilliant light. John Beach said that when the explosion took place the naphtha spread about the floor, and flew in flames over the walls. It was found almost impossible to extinguish it. Mr. F. Tattersall, engineer in charge of the works at the Charles Street station, said that the deceased had care of the whole of the stores. It was his duty if the oil was out to report the fact to his employers. The accident, no doubt, arose from the deceased being ignorant of the difference that existed between oil and naphtha lamps. Mr. Bloxem, house surgeon, said that Millard was brought to the hospital dreadfully burnt over the face, arms, and body. He lingered for a week, and then died from his injuries. The coroner having summed up, the jury returned a verdict, "That deceased died from injuries received from the accidental explosion of a naphtha lamp, and that no person ought to have charge of naphtha lamps who did not thoroughly understand the use of them."

COAL TAR AND PHENIC ACID.—At a late sitting of the Société Impériale et Centrale d'Agriculture, M. Chevreul communicated a highly interesting paper by M. Lemaire, on the use of coal tar and phenic acid (also called *phenol* and *carbonic acid*) in destroying parasites and ridding both plants and animals of them. A very small quantity of phenic acid, benzine, or aniline will destroy microphytes (mould, microscopic mushrooms, &c.) and a great many radiata, mollusca, insects, and vertebrata. All the inferior creation avoid the emanations of those substances. Thus, a watery solution containing one per cent. of phenic acid will instantly destroy the *acarus*, which causes the disgusting disease called the itch. But this solution would be too strong for the destruction of the microscopic plants that attack the vegetable kingdom, since it would destroy, either entirely or partially, the plant it was intended to save. M. Lemaire, therefore, recommends, in the case of the oidium, for instance, that three per cent. of coal tar be intimately mixed up with earth or sand, and laid about an inch thick all round the root of the vine. Some twenty vines treated in this way yielded an excellent crop, while an equal number adjoining the former, and left to themselves, had all their grapes utterly destroyed. When insects are to be kept away from plants, two different cases may present themselves: either the plant is as yet free from them, or it has already been attacked In both cases the above-mentioned coal-tar sand will perform its office with infallible efficacy. Snails, slugs, larvæ, or perfect insects will avoid all plants thus protected so long as there is a volatile principle left in the coal tar, which, when exhausted, should be renewed. This sort of coal-tar powder has another remarkable effect. When introduced into the soil in proper proportions, it will not only cause all insects to disappear, but also increase the vigour of the plants themselves. If manure be watered, before being dug into the earth, with water containing one thousandth part of phenic acid, a similar but less durable effect will be obtained. M. Lemaire also says that corn and all dry agricultural produce in garners or barns may be saved from the ravages of mouldiness or noxious insects, by merely impregnating the air with the emanations of phenic acid.—*Galignani.*

Price Current.

CASTINGS.—*Per Ton.*

Average Weight of Cast-iron Gas-pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	24	28	32	41	70	89	107	126	149	177	208 lb.

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle	Wales.	Yorkshire, Derbyshire, and Staffordshire.
	£. s. d.	£. s. d.	£ s. d.	£. s. d.	£. s. d.
Pig Iron, No. 1, G.M.B.	4 0 0	3 1 6	2 15 0	3 5 0	3 15 0
1¼ and 2-inch Socket-pipes	7 10 0	6 0 0	6 15 0	6 15 0	7 10 0
2½ and 3-inch ditto	7 0 0	6 0 0	6 5 0	6 10 0	7 0 0
4 and 5-inch ditto	6 10 0	5 10 0	5 15 0	6 0 0	6 10 0
6 inches and upwards ditto	6 5 0	5 0 0	5 10 0	5 15 0	6 5 0
Retorts, 1st fusion, hot blast	8 0 0	—	5 5 0	5 10 0	8 0 0
Ditto, 2nd ditto, cold ditto	7 0 0	5 15 0	5 15 0	6 0 0	7 0 0
Tank-plates, ¼ thick and above	6 10 0	5 10 0	5 10 0	5 15 0	6 5 0

WROUGHT-IRON TUBING,

Subject to 50 per cent. Discount.

	2 in.	1¼ in.	1½ in.	1 in.	¾ in	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 12 feet—per foot		1 0	0 10	0 7	0 5	0 4½
Ditto ditto, from 6 inches to 18 inches—each	2 0	2 0	1 9	1 3	1 0	0 9
Connecting-pieces, or Long Screws	3 6	2 3	2 0	1 8	1 2	0 11
Bends, Springs, and Elbows (wrought iron)	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, ditto	4 6	3 0	2 6	2 0	1 6	1 2
Iron Cocks	17 6	9 6	7 6	4 6	3 3	2 6
Ditto, with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and Nipples	1 3	0 9	0 8	0 6	0 5	0 4
Plain Sockets	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 4-quart	15 0	14 0	13 6	13 0	12 0	—

GAS COALS.—*Per Ton.*

Newcastle.—Unscreened:—

Burnhope, East Castle, Haswells, Lanchester's Pelaw, Nettlesworth Primrose, and South Pelaw	6s. 6d.
Dean's Primrose, Felling, North Pelton, Redheugh Main, Walker's Primrose, West Wear, and Whitwell Primrose	6 9
Craghead, Chariaw, Derwent, Edmondsley, Eighton Moor, Hartlepool Pelaw, Holmside, Lambton's Gas, Medomsley, Mickley, New Pelaw, New Pelton, Pelaw Main, Ravensworth, South Moor Pelton, South Leverson, Townley Main, Tyne Main, Washington Hutton, West Pelaw, Wearmouth Hutton, and Witton	7 0
Pearoth, Ravensworth Pelaw, Waldridge, West Gateshead, and West Pelton	7 3
Brancepeth, Pelton, South Pearth, Stella, Urpeth, and West Leverson	7 6

Scotch Cannel:—

Boghead (at Leith)	45 0
Kirkness, best	23 0
Capeldrae, 1st quality	20 0
Ditto, 2nd ditto	12 6
Lesmahago (at Glasgow)	24 6
Ditto (at Granton)	25 6
Arniston	27 6
Wemyss	20 0
Haywood, Wilsontown (at Granton)	14 0
Pirnie	14 0
Lothian's Cannel (free on board at Leith)	25 0
Myles' Cannel	21 0

FREIGHTS.

Coastwise—Newcastle.—Per Ton:—

Chatham and Rochester	6s. 9d. to 7s. 0d
Cork	5s. 6d. to 10 0
Dover, Folkestone, and Rams.	6s. 9d. to 7 0
Dublin	10s. 0d. to 10 6
Exeter Quay	10 0
Ipswich	6 6
London (from Leith)	9 0
London (Pool)	6s. 9d. to 7 0
Lowestoft and Yarmouth	5s. 9d. to 6 0
Portsmouth and Southamptn.	8s. 6d. to 9 0
Plymouth	9 9
Shoreham	8 0
Whitstable	6 6
Weymouth	9 0

Foreign.—Per Keel:—

Barcelona	23 10
Bordeaux	16 0
Boulogne and Calais	9 10
Cadiz	17 0
Copenhagen	10 0
Genoa	22 10
Hamburg	11 10
Havre de Grace	£10. 10s. 11 0
Leghorn	21 0
Lisbon	16 0
Rotterdam	11 0
Stettin	10 0
Trieste	20 0
Venice	21 0

SUNDRIES.

Best Natlc. Fire-bks., p. 1000, £2. 10s. to	£2 15 0
Cliff's Fire-bks. (at Wortley), p. 1000.	2 15 0
Ingham's ditto (at Wortley), p. 1000.	2 15 0
Fire-clay Retorts, p. ft. run, 5s. 6d. to	0 7 0
Tough Cake Copper, p. ton	109 0 0
English Pig Lead, p. ton	21 5 0
Welsh Bar Iron (in London), p. ton	7 10 0
Foreign Spelter, p. ton	22 5 0
English Block Tin, p. ton	100 0 0
Rance, p. ton	93 0 0
Tarred Rope Yarn, p. cwt.	1 0 0

Advertisements.

GEORGE GLOVER & CO.'S

IMPROVED DRY GAS-METERS,

STANDARD GASHOLDERS, AND TESTING APPARATUS.

Extensive experience, in this country and abroad, has proved the superiority of their Improved Dry Gas-Meters, which have come more rapidly into general use than any Meter hitherto manufactured.—The printed Report of the official Inspector of Gas-Meters for the City of Manchester, for the year ending 1863, shows that he tested 5707 *new Dry* Gas-Meters, and only 5 *new Wet* Meters; and that *George Glover and Co.'s Improved Dry Gas-Meters stand highest in point of accuracy*, as shown in the following extract:—

"George Glover and Co., per centage of error on the number tested, 2·116.

Thomas Glover	,,	,,	,,	2·812.
Croll, Rait, and Co.	,,	,,	,,	5·540.
Thomas Fletcher	,,	,,	,,	15·121.
Joseph Boulton	,,	,,	,,	25·000."

Ranelagh Works, Ranelagh Road (near Pimlico Pier), London, S.W.; and 15, Market Street, Manchester.

THE

GAS-METER COMPANY, LIMITED,

(LATE CROLL, RAIT, & CO.,)

Beg to intimate that the printed report of the official inspector of Gas-Meters for the City of Manchester for the year ending **1864** shows the following comparison :—

NEW METERS TESTED.

Of the Gas-Meter Company, Limited . .	Dry . .	1116	
	Wet* . .	1292	
Total		——	2408
Of George Glover and Co.	Dry		383

* The Unvarying Water-Line Gas-Meter, in regard to which the following extract from said report refers :—"The visiting justices will perceive, from a comparison of the tables now appended with those of last year (viz., 1863), *that there has been a large increase in the number of new wet meters tested, owing to the Gas Committee having substituted the wet for the dry in the case of hired meters.*"

Extract from printed report of the said official inspector for the year ending 1862, shows the following comparison :—

Croll, Rait, and Co., per centage of error on the number tested . . 8·671
George Glover and Co. „ „ „ . . 22·727

TO GAS COMPANIES.

WANTED, by the Advertiser, a situation as INSPECTOR or otherwise. Practically understands the working of iron and clay retorts, the laying of mains and services, wet gas-meters and the repair of the same, and the fittings of consumers, and all the duties connected with a gas-work. First-class testimonials.

Address, P., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

WANTED, by a young Man, aged 21, a situation as CLERK. Has been in a gas company's office for the last seven years.

Address, S., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

TO GAS ENGINEERS.

WANTED, to proceed to China immediately, an experienced GAS ENGINEER. One acquainted with the working of ovens, and single, will be preferred. Age must not exceed 35, and he must be constitutionally strong, and of very temperate habits. Commencing salary £500 per annum, with a residence at the Works.

Address, by letter only, endorsed "Engineer," stating age, present and last engagement, and enclosing copies of testimonials, to A. A. CROLL, Esq., 10, Coleman Street, City, LONDON.

WANTED, immediately, Two MANAGERS for small Gas-Works in the country.

Apply, with testimonials, to J. T. B. PORTER & Co., Engineers, LINCOLN.

TO GAS COMPANIES AND OTHERS HAVING GAS-WORKS ABROAD.

THE Advertiser is desirous of taking the MANAGEMENT of a Gas-Work abroad (India preferred). Has had excellent experience at home, and can give undeniable testimony as to ability and character.

Address, NIL DESPERANDUM, care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

A steady, active, young Man, who has been used to meter inspecting, collecting, and assisting in the office, for the last 12 years, is desirous of obtaining a similar situation. Has also a practical knowledge of gas-fitting and meter repairing. London preferred.

Address, Z. A., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

TO GAS COMPANIES.

THE Advertiser is open to an Engagement as MANAGER of Gas-Works. Has had several years practical experience in the carbonizing of coals and distribution of gas. Understands retort setting (both clay and iron), main and service laying, fitting, taking quarterly indices of meters, and making out gas accounts. Age 37. Married.

Address, Cs., care of Mr. King, 11, Bolt Court, FLEET STREET, E.C.

TO IRON ROOF MAKERS.

THE Directors of the Stalybridge Gas Company are prepared to receive TENDERS for the construction of an IRON ROOF, 60 ft. span, to be erected at the Company's Works, Stalybridge.

Drawings and specifications may be seen at the Company's Offices.

Tenders, addressed to the Chairman of the Directors, to be sent not later than the 13th of January next.

GEORGE TAYLOR, Clerk to the Company.

TO IRON-FOUNDERS.

THE Directors of the Stalybridge Gas Company are prepared to receive TENDERS for the IRON WORK required in the erection of a retort-house, stack of retorts, hydraulic mains, ovens, ascension and dip-pipes, &c., at the Company's Works in Stalybridge.

The drawings and specifications may be seen at the Company's Offices.

Tenders, addressed to the Chairman of the Directors, are to be sent or delivered not later than the 13th of January next.

GEORGE TAYLOR, Clerk to the Company.

CLEGG ANNUITY FUND.

At a Meeting of the Trustees of the Clegg Annuity Fund, held on Wednesday, Dec. 20, 1865—present, Mr. Grafton, Mr. Holland, Mr. R. Jones, it was unanimously resolved that, in accordance with the resolution of the subscribers to the Fund at a meeting held June 2, 1862, the cash balance in hand, amounting to £19. 1s., be paid over to Mrs. Clegg, the widow of the late Samuel Clegg the younger; and that twenty-eight 6 per cent. preference shares of £10 each in the Crystal Palace District Gas Company, now standing in the names of the trustees, be also transferred to her.

JOHN GRAFTON.
P. H. HOLLAND,
ROBT. JONES.

CLARIDGE, NORTH, AND CO.,
PHŒNIX FOUNDRY,
BILSTON.
GAS AND WATER PIPES.
Every description of castings to 40 tons each.
LONDON AGENT—MR. V. J. BARTON, 28, MARTIN'S LANE, CANNON STREET.

D. BRUCE PEEBLES,
Gas-Meter Manufacturer,
FOUNTAINBRIDGE,
EDINBURGH.

TAR DISTILLERY BUSINESS.

DORMANT Partner Wanted. Capital required, £1000 to £3000.

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EDMUND SMITH,
GRASBROOK, HAMBURG,

would respectfully call the attention of engineers and managers of gas-works to his Newly Improved GAS-METER, patented 1862 in England, and the principal parts of the Continent.

Price-lists and tenders for gas-meters, experimental station-meters, experimental holders, governors, purifiers, gasholders, pressure-gauges, gas and water fittings, &c., are forwarded on application.

CAST-IRON Retorts, Socket Pipes, with Syphons and all requisite Connexions, Lamp Columns, Wrought Iron Tubing, Valves, Street Lamps, Sight Holes, Furnace Doors, Ash Pans, Charging and Coke Shovels, Iron Pails and Coke Barrows, Cross Bars, Fire Pots, Pumps, Iron Borings.

PURIFIERS, CONDENSERS, and SCRUBBERS erected complete, or the materials supplied; with every description of goods in use by Gas-Works, in stock, on wholesale prices, at

Mr. LYNCH WHITE'S,
Old Barge Iron Wharf, Upper Ground Street,
LONDON.

AUCHINHEATH, Lesmahago, Gas COAL, known in the market for the last fifty years as a first-class gas coal.

JAMES FERGUSON and CO.,

Sole Lessees of the Auchinheath Coal-Field, are prepared to ship the above at Glasgow, Greenock, and Ardrossan, on the west coast of Scotland; and at Granton or Leith, in the Firth of Forth, on the east coast. Also to forward them to any railway-station in Scotland or England.

Price and other particulars may be learned by addressing

JAMES FERGUSON and CO.,
GAS COAL WORKS,
LESMAHAGO.

ROBERT MACLAREN and CO., EGLINTON FOUNDRY, GLASGOW, Manufacturers of all sizes of Cast-Iron Main Pipes, by an improved Patent General Ironfounders, Gas Engineers, and Wrought-Iron Tube Makers.

FOR SALE, in consequence of extension of works, a STATION-METER, in perfect working order. It has clock and tell-tale, and is capable of passing by makers scale 2000 cubic feet of gas per hour. The connexions are 4-in. inlet and outlet. Also 2 Purifiers, 4 ft. square by 2 ft. 6 in. deep, and 6 Mouthpieces, 15 in. wide, with 12 wrought-iron Lids and Ascension-Pipes, all complete.

For further particulars apply to the MANAGER of the Gas-Works, Sutton Coldfield, near BIRMINGHAM.

NOTICE OF REMOVAL.

On and after the 20th of December next the business of

WILLIAM SUGG,

GAS ENGINEER,

will be removed to his New Factory,

VINCENT WORKS, VINCENT STREET,

REGENT STREET, WESTMINSTER.